



## **DEPARTMENT OF THE INTERIOR**

### **Fish and Wildlife Service**

#### **50 CFR Part 17**

**[Docket No. FWS–R6–ES–2012–0053; Docket No. FWS–R6–ES–2013–0020]**

**[4500030113]**

**RIN 1018–AY11; AZ39**

### **Endangered and Threatened Wildlife and Plants; Withdrawal of the Proposed Rule To List Coral Pink Sand Dunes Tiger Beetle and Designate Critical Habitat**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule; withdrawal.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), withdraw the proposed rule to list the Coral Pink Sand Dunes tiger beetle, *Cicindela albissima*, as a threatened species under the Endangered Species Act of 1973, as amended (Act), and designate

critical habitat for the species. This withdrawal is based on our conclusion that the threats to the species as identified in the proposed rule no longer are as significant as believed at the time of the proposed rule. We base this conclusion on our analysis of current and future threats and conservation efforts. We find the best scientific and commercial data available indicate that the threats to the species and its habitat have been reduced below the statutory definition of threatened or endangered. Therefore, we are withdrawing our proposal to list the species as threatened with critical habitat.

**DATES:** The Fish and Wildlife Service is withdrawing the proposed rule published October 2, 2012 (77 FR 60208) **as of [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].**

**ADDRESSES:** The withdrawal of our proposed rule, comments, and supplementary documents are available on the Internet at <http://www.regulations.gov> at Docket Nos. FWS-R6-ES-2012-0053 and FWS-R6-ES-2013-0020. Comments and materials received, as well as supporting documentation used in the preparation of this withdrawal, are also available for public inspection, by appointment, during normal business hours at: U.S. Fish and Wildlife Service, Utah Ecological Services Field Office, 2369 West Orton Circle, Suite 50, West Valley City, Utah 84119; telephone 801-975-3330; or facsimile 801-975-3331.

**FOR FURTHER INFORMATION CONTACT:** Larry Crist, Field Supervisor, Utah Ecological Services Field Office (see **ADDRESSES** section). If you use a

telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

## **SUPPLEMENTARY INFORMATION:**

### **Executive Summary**

*Why we need to publish this document.* Under the Endangered Species Act, a species may warrant protection through listing if it is endangered or threatened throughout all or a significant portion of its range. Listing a species as an endangered or threatened species can only be completed by issuing a rule. Accordingly, we had issued a proposed rule to list this species. However, this document withdraws that proposed rule because we have determined that threats have been reduced such that listing is not necessary for this species.

*The basis for our action.* Under the Endangered Species Act, we can determine that a species is an endangered or threatened species based on any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) Overutilization for commercial, recreational, scientific, or educational purposes; (C) Disease or predation; (D) The inadequacy of existing regulatory mechanisms; or (E) Other natural or manmade factors affecting its continued existence. We have determined that threats have been reduced such that listing is not necessary for this species.

*Peer review and public comment.* We sought comments from independent specialists to

ensure that our proposed listing designation is based on scientifically sound data, assumptions, and analyses. We invited these peer reviewers to comment on our listing proposal. We also considered all comments and information received during the comment periods.

## **Background**

### *Previous Federal Actions*

Please refer to the proposed listing rule for the Coral Pink Sand Dunes (CPSD) tiger beetle (77 FR 60208, October 2, 2012) for a detailed description of the previous Federal actions concerning this species.

In 1997, the Service, Bureau of Land Management (BLM), Utah Department of Natural Resource's Division of State Parks and Recreation (Utah State Parks), and Kane County signed a Candidate Conservation Agreement (CCA) and formed a conservation committee with the dual goals of protecting CPSD tiger beetle habitat and balancing the needs of this rare species with off-road vehicle (ORV) use in the area (Conservation Committee 1997, pp. 4–5). These agencies renewed the CCA in 2009 (Conservation Committee 2009, entire). Coordination under the CCA resulted in the establishment of two Conservation Areas that protected the CPSD tiger beetle from ORV use—Conservation Areas A and B (see *Habitat* and *Factor A* for more information on the Conservation Areas).

In our 2010 Candidate Notice of Review, we identified the CPSD tiger beetle as a species for which listing as an endangered or threatened species was warranted (with a listing priority number of 2) but precluded by our work on higher priority listing actions (75 FR 69222, November 10, 2010). In the 2011 Candidate Notice of Review, we announced that we were not updating our assessment for this species, because we received funding to develop a proposed listing rule (76 FR 66370, October 26, 2011).

On October 2, 2012, we proposed to list the CPSD tiger beetle as a threatened species with designated critical habitat under the Act (77 FR 60208). Publication of the proposed rule opened a 60-day comment period that closed on December 3, 2012. Following publication of our proposed rule, the conservation committee reconvened to evaluate current species' survey and distribution information and reassess the conservation commitments in the 2009 CCA. Based on this evaluation, the conservation committee agreed to expand Conservation Area A, which is already subject to management under a CCA, and provide protected habitat islands for the species in the intervening dunes between Conservation Areas A and B as they are defined in the CCA. The 2009 Conservation Agreement was amended accordingly in 2013 (2013 CCA Amendment) (see *Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*).

On May 6, 2013 (78 FR 26308), we announced the reopening of the public comment period on our October 2, 2012, proposed listing decision and proposed

designation of critical habitat for the species. At this time we also announced the availability of a draft economic analysis (DEA), a draft environmental assessment (EA), the 2013 Amendment to the 2009 Conservation Agreement and Strategy for the Coral Pink Sand Dunes tiger beetle (2013 CCA Amendment), and an amended required determinations section of the proposal (78 FR 26308). We also announced the availability of 2012 CPSD tiger beetle survey results that were not available when the proposed rule was being written and the plans to hold a public information meeting and public hearing on May 22, 2013, in Kanab, Utah (78 FR 26308).

#### *Taxonomy and Species Description*

The CPSD tiger beetle is a member of the family Cicindelidae and genus *Cicindela*. There are 109 species of tiger beetles in the genus *Cicindela* in the United States and Canada (Pearson *et al.* 2006, p. 4). The CPSD tiger beetle occurs only at the CPSD geologic feature in southern Utah and is separated from its closest related subspecies, the Great Sand Dunes tiger beetle (*C. theatina*), by over 600 kilometers (km) (378 miles (mi)) (Rumpp 1961, p. 182). It shares the typical characteristics of other members of the *maritima* group (a group of closely related species of sand dune tiger beetles) and is most similar in morphology to other subspecies of *Cicindela limbata* (no common name). It was originally described as *C. limbata albissima* (Rumpp 1961, p. 181). However, more recent genetic analysis revealed that the CPSD tiger beetle is different from all other members in the *maritima* group; consequently, we now consider it

a distinct species, *Cicindela albissima* (Morgan *et al.* 2000, p. 1111). This is the accepted taxonomic classification (Pearson *et al.* 2006, p. 77).

CPSD tiger beetle adults are 11 to 15 millimeters (mm) (0.4 to 0.6 inches (in)) in size and have striking coloration. The large wing cases (known as elytra) are predominantly white except for a thin reddish band that runs down the length of the center. Much of the body and legs are covered in white hairs. The upper thorax (middle region) has a metallic sheen, and the eyes are particularly large (Pearson *et al.* 2006, p. 77).

### *Habitat*

Tiger beetles can occur in many different habitats, including riparian habitats, beaches, dunes, woodlands, grasslands, and other open areas (Pearson *et al.* 2006, p. 177). Most tiger beetle species are habitat-specific and consequently are useful as indicators of habitat quality (Knisley and Hill 1992, p. 140). The CPSD tiger beetle, like its close relatives the Great Sand Dunes tiger beetle (*Cicindela theatina*) from the Great Sand Dunes of Colorado, *C. l. limbata* from the western Great Plains, and the St. Anthony Dunes tiger beetle (*C. arenicola*) from the St. Anthony Dunes of Idaho, is restricted to sand dune habitat.

The species' current range extends along the CPSD geologic feature. The CPSD is a geologic feature named for the deep pink color of its sand dunes (Ford *et al.* 2010, p.

380). The CPSD are located 5 km (3.1 mi) north of the Utah–Arizona state line and 13 km (8 mi) west of Kanab, Utah (see Figure 1 below in *Population Distribution*). The CPSD are about 13 km (8 mi) long, averaging 1.1 km (0.7 mi) in width, and 1,416 ha (3,500 ac) in surface area.

The CPSD consist of a series of high, mostly barren, dry dune ridges separated by lower, moister, and more vegetated interdunal swales (low places between sand dune crests) (Romey and Knisley 2002, p. 170). Wind action, primarily blowing from south to north, created and continues to shape the CPSD, using sand from nearby eroding Navajo sandstone (Doelling and Davis 1989, p. 3). Wind velocity decreases as it moves across the sand dunes (from south to north), resulting in a dynamic and less vegetated southern CPSD area that transitions to a less dynamic, more heavily vegetated, higher elevation northern CPSD area (Ford *et al.* 2010, pp. 387–392).

The CPSD are in a semiarid climatic zone (Ford *et al.* 2010, p. 381). The nearest weather station, in Kanab, has a mean annual temperature of 12.4 °Celsius (°C) (54.4 °Fahrenheit (°F)) and mean annual precipitation of 33.8 centimeters (cm) (13.3 in) (Ford *et al.* 2010, p. 381). The northern 607 ha (1,500 ac) of CPSD is Federal land managed by the BLM. The southern 809 ha (2,000 ac) of the CPSD is within Utah’s CPSD State Park.

Adult CPSD tiger beetles use most of the dune areas from the swales to the upper dune slopes. Larval CPSD tiger beetles are more restricted to vegetated swale areas



(Knisley and Hill 2001, p. 386), where the vegetation supports the larval prey base of flies, ants, and other prey (Conservation Committee 2009, p. 14). Larval CPSD tiger beetle habitat is typically dominated by the leguminous plants *Sophora stenophylla* (silvery sophora) and *Psoraleidium lanceolatum* (dune scurfpea), and several grasses, including *Sporobolus cryptandrus* (sand dropseed) and *Achnatherum hymenoides* (Indian ricegrass). Larvae also are closely associated with a federally threatened plant species, *Asclepius welshii* (Welsh's milkvetch) (Knisley and Hill 2001, p. 385), for which the entire CPSD area is designated critical habitat (52 FR 41435, October 28, 1987).

We do not have comprehensive analysis or occupancy modeling that predicts the habitat preferences of the CPSD tiger beetle. However, a preliminary habitat assessment indicated that the beetle exists where there is abundant prey and larvae, large swale areas capable of supporting the appropriate vegetation, swale sediment characteristics appropriate for vegetation and larval burrows, dune migration characteristics that permit vegetation to develop and persist within dune swales, proper sediment supply, and a proper wind regime (Fenster *et al.* 2012, pp. 2–4).

Rainfall and associated soil moisture is a critical factor for CPSD tiger beetles (Knisley and Juliano 1988, entire) and is likely the most important natural environmental factor affecting population dynamics of the species. Rainfall and the associated increase in soil moisture have a positive effect on CPSD tiger beetle oviposition (egg depositing) and survivorship (Knisley and Hill 2001, p. 391). The areas in the dune field with the highest level of soil moisture and where soil moisture is closer to the surface contain the

highest densities of CPSD tiger beetle larvae (Knisley and Gowan 2011, p. 22), indicating that both proximity to moisture and overall soil moisture are important to the CPSD tiger beetle's life cycle. Experimental supplemental watering has resulted in significantly more adults and larvae, more oviposition events, increased larval survival, and faster larval development compared to unwatered control plots (Knisley and Gowan 2011, pp. 18–22).

### *Population Distribution*

The CPSD tiger beetle occurs sporadically throughout the CPSD geologic feature, but only consistently exists in two populations—central and northern—which are separated by 4.8 km (3 mi) (Figure 1; Knisley 2012, pers. comm.). The total range of the species is approximately 202 ha (500 ac) in size (Morgan *et al.* 2000, p. 1109).

The central population is the largest and is self-sustaining, but at relatively moderate numbers (see *Population Size and Dynamics*, below). The northern population comprises a small number of adults and larvae (Knisley 2001, p. 9), which are typically found in only a few individual swales (Knisley and Gowan 2013, pp. 8–11). In the proposed rule, we stated that the northern population likely persists because of adults dispersing from the central population (Knisley and Gowan 2011, p. 9). However, we received information from a peer reviewer indicating it may sustain itself at low numbers via natural reproduction, and thus not be reliant on dispersers from the central population (see Peer Review; Knisley 2013, pers. comm.). At this time, we do not have enough

information to determine which scenario is correct or if it is a combination of the two. Regardless, we do not consider the northern population to be self-sustaining because only a small number of adults and larvae have been found at this location since 1998, and insect populations typically need to have larger populations to be considered self-sustaining (Thomas 1990, p. 325; see Small Population Effects under *Factor E*). Therefore, we conclude that the area between the central and northern populations can provide a corridor for dispersal (Knisley 2013, pers. comm.), and has the potential to provide habitat for colonization by CPSD tiger beetles (see Climate Change and Drought under *Factor E*).

Low densities of adult CPSD tiger beetles occur in the dune area between the central and northern populations (Figure 1; Hill and Knisley 1993, p. 9; Knisley 2012, pers. comm.), and suitable swale habitat likely exists in this area. This area has not been extensively surveyed on a regular basis, and observations of the species in this area are from opportunistic and inconsistent surveys. No CPSD tiger beetles were observed in this area during 2012 surveys. Regardless, the 4.8-km (3-mi) long area of dune between the two populations provides habitat for the species and may provide a dispersal corridor between populations (see *Adult Dispersal* below; Knisley and Gowan 2011, p. 9).

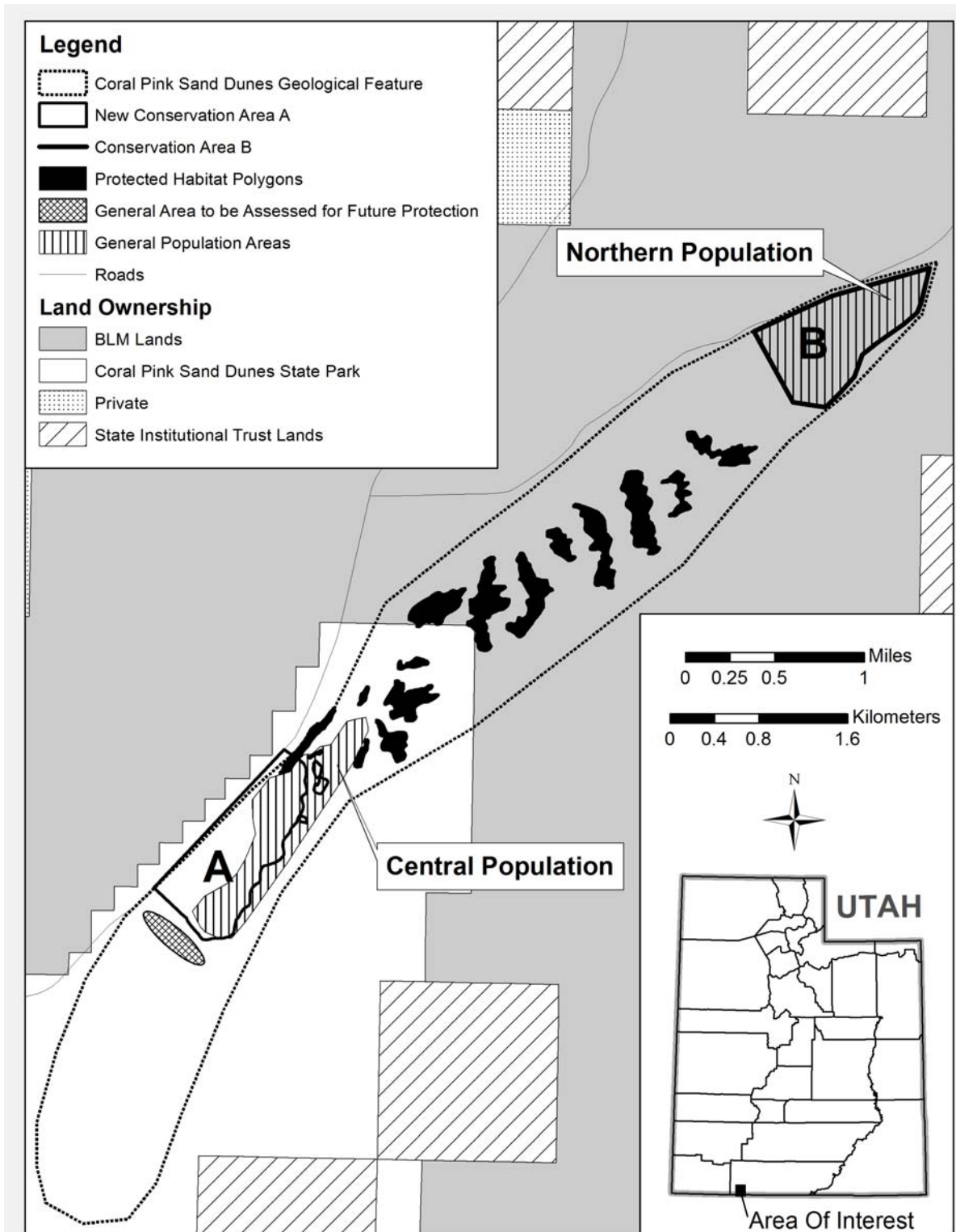


Figure1. Coral Pink Sand Dunes tiger beetle populations and Conservation Areas.

As previously mentioned (see *Previous Federal Actions*), an interagency CCA (as amended in 2013) established Conservation Areas A and B and intervening habitat islands between the two conservation areas to protect the CPSD tiger beetles from ORV use (see *Factor A, The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range* for more information). These Conservation Areas generally overlap the central and northern populations of CPSD tiger beetles (see Figure 1).

### *Life History*

Similar to other tiger beetles, the CPSD tiger beetle goes through several developmental stages. These include an egg, three larval stages (known as “instars,” with each instar separated by molting), pupa, and adult (Knisley and Shultz 1997, p. 13).

CPSD tiger beetle oviposition occurs in a manner typical of most tiger beetles, which can include several different methods. For one method, the female is positioned vertically and digs a small hole with the ovipositor at the end of her body and places an egg in the small hole, typically about 6.35 mm (0.25 in) deep. Eggs can also be laid by the female within the burrows that tiger beetles typically dig during the hot part of the day and at night. These burrows are about 25.4–50.8 mm (1–2 in) deep and 50.8 mm (2 in) long. This method puts the eggs deeper in the soil than the first egg-laying method and can more easily deposit eggs in moist soil (Knisley 2013, pers. comm.).

Moist soil appears necessary for egg laying; however, we have no specific information on CPSD tiger beetle egg survival or how various factors might affect eggs since the eggs are almost impossible to find (about 1 mm (0.04 in) long and inconspicuous in the sand) even when a female is observed laying them (Knisley 2013, pers. comm.). For these reasons, we do not know how many eggs are laid by tiger beetles in their natural environment or the environmental conditions that affect eggs in the field (Knisley 2013, pers. comm.). In the lab, various species of beetles lay from 20 to 300 eggs and CPSD tiger beetles lay 30–50 eggs per female over several weeks (Knisley 2013, pers. comm.). Most or all eggs are viable and will hatch under suitable conditions, particularly moist soil. Many eggs will hatch only after sufficient rains, since, as with many insects, the egg coat needs to absorb moisture to hatch (Knisley 2013, pers. comm.)

First instar larvae appear in late spring after hatching from eggs that were oviposited in sand the previous late summer or fall (Knisley and Hill 1997, p. 2). The first instar larvae dig small vertical burrows from the sand surface down 6 to 9 cm (2.4 to 3.5 in) into the sand substrate (Conservation Committee 2009, p. 14). After several weeks of feeding at the surface, the first instar larva plugs its burrow opening, sheds its skin (molts), and becomes a larger second instar larva (Conservation Committee 1997, p. 2). The second instar stage lasts several months (again emerging from its burrow and feeding at the surface for a brief period) before developing into a third instar, with most reaching this stage by mid- to late summer (Conservation Committee 1997, p. 2). Larvae continue as second or third instars into fall, and then hibernate in burrows during the winter (Conservation Committee 1997, p. 3). The third instar stage can take 9 months to

over a year to reach full development (Conservation Committee 1997, p. 3). After the third instar is fully developed, the CPSD tiger beetle plugs its burrow opening and transforms into a pupa (Pearson and Vogler 2001, p. 34). During the pupal period (stage between third instar and adult emergence), the beetle undergoes a metamorphosis where many of the adult physical structures develop (i.e., wings and flight muscles) (Pearson and Vogler 2001, p. 34). Adults emerge soon after this metamorphosis. The CPSD tiger beetle completes its entire life cycle from egg to adult reproduction to death within 2 or 3 years (Knisley and Hill 1997, p. 3).

#### *Adult Behavior and Ecology*

Adults are active on sunny days along the dunes and swale edges. The majority of recently metamorphosed adult CPSD tiger beetles emerge from their burrows in late March to early April, reach peak abundance by May, begin declining in June, and die by August (Knisley and Hill 2001, p. 387). A small proportion of a second adult cohort emerges in early September and remains active into October before digging overwintering burrows (Knisley and Hill 2001, pp. 387–388).

Adult tiger beetles are active predators, attacking and eating prey with their large and powerful mandibles (mouthparts). They can run or fly rapidly over the sand surface to capture or scavenge for prey arthropods. Adults feed primarily on ants, flies, and other small arthropods (Hill and Knisley 1993, p. 13).

CPSD tiger beetle behavior and distribution, like other tiger beetles, is largely determined by their thermoregulation needs. Adult tiger beetles dedicate up to 56 percent of their daily activity towards behavior that controls their internal body temperature (Pearson and Vogler 2001, p. 135). These behaviors include basking (positioning the body to maximize exposure to solar radiation); seeking out wet, cool substrate or shade; and burrowing (Pearson and Vogler 2001, p. 136). Tiger beetles require a high body temperature for maximal predatory activity, and at low body temperatures they become sluggish (Pearson and Vogler 2001, p. 131). Thus, the numbers of adult CPSD tiger beetles observed on rainy or cool, cloudy days are very low (Knisley and Hill 2001, p. 388). Tiger beetles maintain body temperatures near their lethal limits of 47 to 49 °C (116 to 120 °F) (Pearson and Vogler 2001, p. 131), so heat refuge is important (Shutlz and Hadley 1987, p. 363). During peak spring and fall activity, when it is sunny, adult CPSD tiger beetles are usually active early (9 a.m.–2 p.m.) and again in late afternoon (4 p.m.–7 p.m.) (Hill and Knisley 1993, pp. 13–14). They dig and reside in burrows to avoid unfavorable weather conditions such as hot mid-afternoons or cool or rainy daytime conditions (Hill and Knisley 1993, p. 14). Shade provided by vegetative cover is important for CPSD tiger beetle thermoregulation during warm periods (Knisley 2012, pers. comm.).

### *Adult Dispersal*

Dispersal is the movement of individuals from one habitat area to another. The ability to disperse is often important to tiger beetle species because many species inhabit



areas such as sand dunes or riverbanks that are prone to disturbance and physical change (Pearson and Vogler 2001, pp. 130–142; see *Factor E (Sand Dune Movement)*). In the proposed rule we stated that we did not have information on the dispersal habits of the CPSD tiger beetle, so we evaluated information for surrogate species that occupy unstable habitats similar to the CPSD geologic formation. Peer review comments on our proposed rule (see Peer Review) indicate that limited dispersal information exists for the species. Available information shows CPSD tiger beetle adults commonly move up to 800 m (2,625 ft) within the dune field over a period of 1 or 2 weeks (Knisley and Gowan, 2004; entire; Knisley 2013, pers. comm.), but we do not know the mechanisms by which this dispersal affects population persistence. Information on the dispersal habits of other species is provided below for comparative purposes.

The Maricopa tiger beetle, *Cicindela oregona maricopa*, is an example of a species that uses dispersal mechanisms to persist in an unstable environment. The Maricopa tiger beetle inhabits moist sandy habitat on the banks of small streams and creeks (Pearson and Vogler 2001, p. 141). Flash flooding periodically scours away this sandy habitat and most of the existing population (Pearson and Vogler 2001, p. 141). These floods redistribute the scoured sand elsewhere, and surviving adult tiger beetles quickly disperse and colonize the newly available habitat (Pearson and Vogler 2001, p. 141). Similarly for the CPSD tiger beetle, the CPSD geologic formation is continually changing as winds redistribute the sands, creating and destroying swale habitat and dispersal habitat within and between Conservation Areas A and B (see *Factor E Sand Dune Movement* below).

Often, tiger beetle populations depend upon dispersal among separated populations for the survival of individual populations and the species (Knisley *et al.* 2005, p. 557). The extirpation of at least one population of the Northeastern Beach tiger beetle, *Cicindela dorsalis dorsalis*, (federally listed as a threatened species) is partially attributed to the lack of nearby populations and associated dispersal habitats (Knisley *et al.* 2005, p. 557). Similarly, in the CPSD geologic feature, the northern population of the CPSD tiger beetle may persist because of dispersal from the central population, across the CPSD (Knisley and Gowan 2011, p. 9), although as we learned in the peer review of our proposed rule this dependency is uncertain (see *Population Distribution*; Peer Review). In like fashion, the resilience of the central population would be greatly increased if the northern population became self-sustaining with a higher population number, and thus could more easily and frequently contribute to the central population by dispersing across the CPSD.

#### *Larval Behavior and Ecology*

Larval CPSD tiger beetles are ambush predators that wait at the mouth of their burrow to capture small arthropod prey when it passes nearby. The daily period of activity is highly variable and influenced by temperature, moisture levels, and season (Knisley and Hill 2001, p. 388; Knisley and Gowan 2008, p. 20). Larvae can be active much of the day during cool or cloudy spring and fall days, except during high wind periods (Conservation Committee 2009, p. 14). Maximal activity occurs in early

mornings before the soil becomes dry and warm from the sun and again in late afternoon and evening after the soil has cooled (Conservation Committee 2009, p. 14).

Adult females determine the larval microhabitat by their selection of an oviposition site (Knisley and Gowan 2011, p. 6). Recently hatched larvae construct burrows in the sand at the site of oviposition and subsequently pass through three larval stages before pupating and emerging to the adult form (Conservation Committee 2009, p. 14). Most larvae occur within the swale bottoms and up the lower slopes of the dunes, particularly where the soil or subsoil is moist most of the time (Knisley and Hill 1996, p. 11; Knisley and Gowan 2011, p. 22). The swale vegetation supports the larval prey base of ants, flies, and other prey (Conservation Committee 2009, p. 14). Larvae most often remain in the same burrow throughout their development and only rarely move outside of their burrow to dig a new burrow in a more favorable location (Knisley and Hill 1996, p. 11).

#### *Population Size and Dynamics*

Substantial year-to-year population variation is typical of many desert arthropods that are greatly affected by climatic factors such as rainfall (Knisley and Hill 2001, p. 391). Adult abundance in any year is a result of many interacting factors that affect recruitment of the cohort oviposited 2 or 3 years previous (because of a 2- or 3-year life cycle), and also the survivorship of the developmental stages of that year's cohort (Knisley 2001, p. 10).

The central and northern populations were monitored for the last 21 and 15 years (respectively) to yield a yearly adult CPSD tiger beetle population size estimate. In our proposed rule, we presented an adult population size estimate based solely on data collected from the central population from 1992 to 1997, and after 1997 the adult population size estimate was based on both populations. Information reported to us in the peer review process (see Peer Review) revealed that it was not appropriate to report population estimates from both of these periods on the same graph due to changes in population sampling methods (Knisley and Gowan 2013, pp. 7–9). Furthermore, the currently used (1998–2013) removal method for population estimates is very reliable while the previously used (1992–1997) mark–recapture method significantly overestimated abundance, often 2–3 fold. Consequently, since the estimates made in 1992 to 1997 are overestimates, comparisons of population size before and after 1998 are not valid (Knisley and Gowan 2013, pp. 7–9). In this document, we focus on population estimates from 1998 forward because of these reasons, and because this time period encompasses the lowest and highest population estimates recorded.

Population numbers fluctuated greatly over the 1998 to 2013 timeframe, ranging from a high of 2,944 in 2002 to a low of 558 in 2005 (Figure 2). The total adult population size estimate in 2013 was 2,494 (Knisley 2013, pers. comm.). Population monitoring results indicate a low, yet stable to increasing, population size since 2003 that contrasts with highly variable population estimates in previous periods (Knisley and Gowan 2011, pp. 7–8; Knisley and Gowan 2013, p. 8; Knisley 2013, pers. comm.).

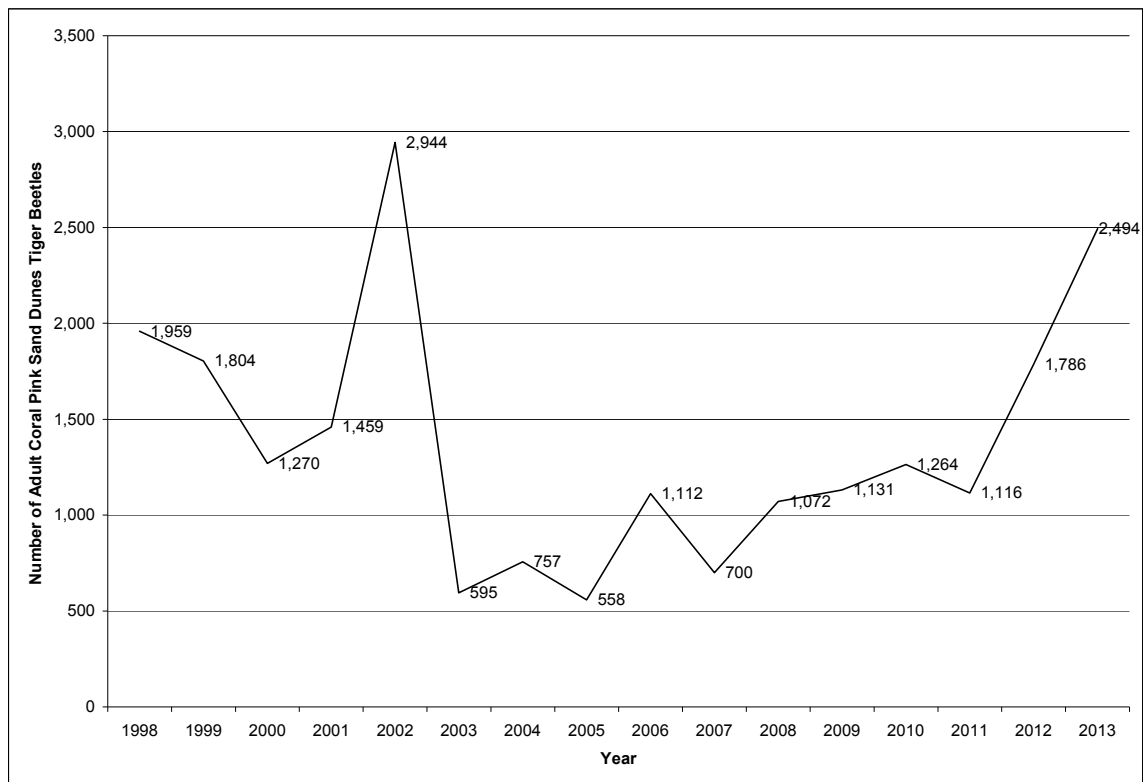


Figure 2. Adult CPSD tiger beetle population size estimate at Coral Pink Sand Dunes from 1998 to 2013 (data from Knisley and Gowan 2013, p. 8; Knisley 2013, pers. comm.).

### *Population Viability Analysis*

The CPSD tiger population viability analysis (PVA) in the proposed rule demonstrated that reductions in growth rate and carrying capacity (albeit a moderate effect on PVA compared to growth rate) increase the probability of extinction for this species (77 FR 60208, October 2, 2012). Since publication of the proposed rule, we have further investigated the appropriateness of using PVA models to inform the CPSD tiger

beetle listing decision and rulemaking process. We have determined that PVA analysis should not be used as an absolute prediction of the likelihood of species extinction due to the intrinsic limitations of any model that uses incomplete information to predict future events (Reed et al. 2002, pp. 14–15). Instead, PVA analysis is more useful to direct conservation actions or decide among a suite of alternative management strategies (Schultz and Hammond 2003, p. 1376; Beissinger *et al.* 2006, p. 13). Thus, we do not further discuss PVA analysis of CPSD tiger beetle populations, and alternatively will use the modeling tool in the future to direct species management options.

### **Summary of Comments and Recommendations**

In the proposed rule published on October 2, 2012 (77 FR 60208), we requested that all interested parties submit written comments on the proposal by December 3, 2012. We also contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. A newspaper notice inviting general public comment and advertisement of the information meeting and public hearing was published in the Southern Utah News. We received requests for a public hearing, which was held in Kanab, Utah, on May 22, 2013. We reopened the comment period on May 6, 2013 (78 FR 26308), to accept comments on several rule-related documents (see **Previous Federal Actions**) and for comments received during the public hearing. The final comment period closed June 5, 2013.

During the two comment periods for the proposed rule, we received more than 1,000 comment letters directly addressing the proposed listing of the CPSD tiger beetle with designated critical habitat. Submitted comments were both for and against listing the species with designated critical habitat. During the May 22, 2013, public hearing, fewer than 10 individuals or organizations commented on the proposed rule, all of which were opposed to the proposal. All substantive information provided during the comment periods has either been incorporated directly into this withdrawal or addressed below.

#### *Peer Review*

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinion from three appropriate and independent specialists with scientific expertise that included familiarity with tiger beetles and their habitat, biological needs, and threats. We received responses from two of the peer reviewers.

We reviewed all comments received from the peer reviewers for substantive issues and new information regarding the listing of the CPSD tiger beetle. Peer reviewer comments are addressed in the following summary and incorporated into this withdrawal document as appropriate.

#### Peer Review Comments

*(1) Comment:* One peer reviewer said that questions exist about how the northern population fluctuates or is sustained. The peer reviewer stated that dispersal from the central population as the factor that sustains the northern population; however, this theory is uncertain and there is no solid evidence for it except that adults disperse when the central population numbers are high. The peer reviewer stated that at these times, more adults are observed in peripheral areas. The peer reviewer put forth an alternative explanation that the fairly consistent numbers of larvae (although highly variable) produce and sustain the presence of small numbers of adults seen there, and thus the northern population could exist independent of dispersal. The peer reviewer noted that regardless of which theory is correct, the area between these two populations can provide a corridor for dispersal. The peer reviewer further stated that monitoring information shows CPSD tiger beetles can disperse as far as 800 m (2,625 ft) within a week or less and that no information is available to indicate how important the area between A and B is for dispersal, so it is uncertain if and how many adults might be killed by ORV activity in these areas.

*Our Response:* Although the northern population is not self-sustaining, it provides an important component to the conservation of CPSD tiger beetle. At this time, we do not have enough information to determine whether the northern population maintains itself at a low level via natural reproduction and recruitment, or is sustained by dispersing CPSD tiger beetles from the central population (see *Population Distribution* under **Background**). Regardless, the habitat between Conservation Areas A and B provides important habitat for the species for dispersal and potential colonization and will



be important to offset the effects of climate change. A dispersal corridor is, therefore, being permanently protected in this area by 14 habitat polygons, that were established through the 2013 CCA Amendment (see **Ongoing and Future Conservation Efforts**).

*(2) Comment:* One peer reviewer asked why the Service needed to designate critical habitat for the CPSD tiger beetle when critical habitat is already designated for Welsh's milkweed.

*Our Response:* Critical habitat designation is established for individual species based on the habitat necessary for the species' sustained survival, including primary constituent elements particular to an individual species. However, this document withdraws the proposed listing for the CPSD tiger beetle; therefore, no critical habitat is being designated.

*(3) Comment:* One peer reviewer indicated that fairly extensive CPSD tiger beetle surveys were conducted in 2012 for the area between the central and northern populations, but no adults were found.

*Our Response:* Published information regarding this sampling was not available prior to the time that the proposed rule was finalized for publication. We incorporated the 2012 survey information into this final determination.

(4) *Comment:* One peer reviewer questioned whether the northern occurrence of CPSD tiger beetle should be referred to as a population.

*Our Response:* We believe that this occurrence of the species is properly described in the proposed rule as it is a localized grouping of the species that has been observed separately from the central population for over the last 15 years. However, we do not consider the northern population to be self-sustaining because only a small number of adults and larvae have been found at this location since 1998, and insect populations typically need to have larger populations to be considered self-sustaining (see Small Population Effects under *Factor E.*).

(5) *Comment:* One peer reviewer provided information that CPSD tiger beetles are present in smaller numbers south and east of Conservation Area A. The reviewer noted the proposed rule incorrectly indicated that CPSD tiger beetles are absent from the south-central and southeastern portions of Conservation Area A and the general area south of Conservation Area A.

*Our Response:* CPSD tiger beetle distribution was considered in the 2013 CCA Amendment and updated for this determination and withdrawal of the proposed rule.

(6) *Comment:* One peer reviewer stated that the information in the proposed rule regarding surveys in northern swales is not fully accurate; regular surveys were completed in the northern area swales, and adults or larvae were found each year for the

past 5–7 years including 2012. The peer reviewer noted that in the 1990s, extensive surveys over the whole northern area confirmed absence of adults in most of the swales; thus, more recent surveys targeted those few swales that supported adults or larvae. The peer reviewer stated that enough surveys have been completed in Conservation Area B to confirm the absence of CPSD tiger beetles and habitat in all but a small part of the area, and that area is marginal habitat.

*Our Response:* CPSD tiger beetle distribution information was updated based on this information (see *Population Distribution* under **Background**). Although the quality of the habitat in Conservation Area B may not currently allow for large populations of CPSD tiger beetles to develop, the presence of the species in low numbers indicates that this area is important to conservation of the species.

*(7) Comment:* One peer reviewer recommended updating the information in the proposed rule regarding collection of CPSD tiger beetles by amateur beetle collectors. The reviewer is familiar with general amateur collector behavior in the United States and stated the following regarding the effects of this activity on CPSD tiger beetles: (1) Amateur collectors have taken adult CPSD tiger beetles in recent years; (2) there are many tiger beetle collectors out there, possibly a hundred or more and perhaps increasing; (3) most want to collect all of the U.S. species, and it is virtually impossible for State park personnel to prevent this; however, it is likely that most collectors will take only a small number of adults with limited effects on the population.

*Our Response:* CPSD tiger beetle amateur collecting information was updated based on this information (see *Factor B.*).

*(8) Comment:* One peer reviewer questioned if it was necessary to protect Conservation Area B given the small numbers of tiger beetles in this area.

*Our Response:* Although the proposed rule states that the CPSD tiger beetle population at Conservation Area B is not self-sustaining, the species is still present in this area and should continue to receive the protection provided by Conservation Area B. Continuing to protect the species in this location results in improved long-term habitat conditions for the CPSD tiger beetle, resulting in increased species' resiliency, which makes the species less susceptible to threats such as climate change and drought, demographic and environmental stochasticity, and catastrophic events (see *Factor E. Climate Change and Drought and Small Population Effects*). Continued protection of Conservation Area B is discussed in this withdrawal document and included as a conservation measure in the 2013 CCA Amendment (see **Background, Ongoing and Future Conservation Efforts, and PECE Analysis**).

*(9) Comment:* One peer reviewer stated that the area between Conservation A and B has not been confirmed as a dispersal corridor.

*Our Response:* The proposed rule stated that this area it is likely a dispersal corridor. We have updated this information to reflect that we are uncertain to what level

this area acts as a dispersal corridor, but that based on the life history of similar tiger beetle species, this area should be protected for CPSD tiger beetle dispersal and colonization. Further, the establishment and monitoring of the additional habitat polygons in this area will provide additional information on the importance and usage of this area by the CPSD tiger beetle.

*(10) Comment:* One peer reviewer concluded that the CPSD tiger beetle must receive significant protection because of its small population size and very limited geographical range. The peer reviewer stated that over the past decade, populations have been as low as several hundred individuals and the core habitat for this population consists of just a few dune swales located within the CPSD geologic feature. The peer reviewer noted this core habitat is currently protected from ORV use, but this does not negate the inherent risk posed by small population size and limited habitat.

*Our Response:* The Service agrees that the CPSD tiger beetle should receive protection in part because of its small population size and very limited geographical range. Conservation actions have been developed and implemented as part of the 2013 CCA Amendment to address the risk posed by ORV use, small population size, and limited habitat. In addition, as a result of the existing conservation efforts, CPSD tiger beetle numbers have generally been increasing for the past 8 years.

*(11) Comment:* One peer reviewer stated that the critical habitat identified in the proposed rule is correct, with the most critical habitat currently located in the southern end of the area (“Conservation Area A”).

*Our Response:* This document withdraws the proposed listing of the CPSD tiger beetle. Therefore, critical habitat will not be designated for this species.

*(12) Comment:* One peer reviewer and another commenter recommended that the Service explore opportunities to expand the natural range of the beetle beyond the CPSD geologic feature.

*Our Response:* We agree that range expansion should be pursued as a goal for CPSD tiger beetle conservation, and actions to achieve this objective are detailed in the 2013 CCA Amendment.

*(13) Comment:* One peer reviewer concluded that the protected areas described in the proposed rule (now called “Conservation Area A” and “Conservation Area B”, with Area A being the most important) should be expanded to provide adequate protection from ORV use. However, this reviewer also concluded that the beetle would still face extinction due to naturally small population sizes and limited habitat, and the additional protection provided by the expanded conservation areas would not materially improve the species’ chances for survival.

*Our Response:* We agree that expansion of CPSD tiger beetle protective areas should be pursued as a goal for the species' conservation, and actions to achieve this objective are included and being implemented by the 2013 CCA Amendment. However, as discussed in the proposed rule and this withdrawal document, we do not consider small population size alone to be a threat. A species that has always been rare, yet continues to survive, could be well equipped to continue to exist into the future. Many naturally rare species have persisted for long periods within small geographic areas, and many naturally rare species exhibit traits that allow them to persist despite their small population sizes. Consequently, the fact that a species is rare does not necessarily indicate that it may be in danger of extinction.

*(14) Comment:* One peer reviewer recommended that the Service expand Conservation Area A to include: (1) The two dune ridges to the south (termed “the D swales” in recent reports by Knisley and Gowan); and (2) swales immediately to the east and north, numbered as follows in the 2013 CCA Amendment: 6, 7, 8, 12, 15, 16, 19, 20, 21, 22, 23, 25, and 27. The peer reviewer further stated that these swales should not be protected as individual “islands.” Instead, they should be included in one expanded, contiguous conservation area (i.e., the boundary should be established around the entire set of swales).

*Our Response:* Generally, this recommendation is being adopted as part of the 2013 CCA Amendment, although not all swales will be incorporated into Conservation A so that safe travel corridors can be maintained for ORV users within the CPSD feature.

Although the entirety of the D swales is not incorporated into Conservation Area A, the conservation committee agreed to protect this swale habitat as isolated polygons. Swales 6 and 7 will be protected in an isolated polygon as will swale 8 and 9, and a portion of swale 12 will be protected. The remainder of the swales and the lands in between them will be incorporated into Conservation Area A.

*(15) Comment:* One peer reviewer noted that because the dune field is dynamic, the boundaries of newly protected habitat will need to be adjusted over time as specific dunes become either more or less suitable for tiger beetles. The peer reviewer stated that continued monitoring of the distribution and abundance of the beetle, with the potential to expand or reduce the areas off-limits to ORVs, is necessary, and adaptive management of tiger beetle habitat is key to reducing extinction risk.

*Our Response:* We agree with this approach for CPSD tiger beetle conservation and adaptive management. Actions to achieve this objective are detailed in the 2013 CCA Amendment (see **Ongoing and Future Conservation Efforts**).

*(16) Comment:* One peer reviewer noted that the description and analysis of the biology, habitat, population trends, historical and current distribution of the species, and factors affecting the species contained in the proposed rule are accurate. The peer reviewer further stated that the proposed rule cites all the necessary and pertinent literature to support the subsequent assumptions, arguments, and conclusions.



*Our Response:* Comment noted.

*State and County Comments*

*(17) Comment:* The Utah Governor's Office does not agree that listing the species and designating critical habitat is necessary to ensure the protection of the CPSD tiger beetle. The Utah Governor's Office stated that instead, conservation of the species should continue under direction of the 1997 CCA, its reauthorization in 2009, and the 2013 Amendment to this agreement. The Utah Governor's Office provided examples of the effectiveness of the CCAs, including: establishment of two conservation areas that prohibit ORV use; annual monitoring; species life-history research; watering research; genetics studies; population viability analysis; protection for the species via BLM and Utah State Parks law enforcement; an educational program; and development of a translocation protocol. The Utah Governor's Office also stated that the collaborative partnership of the CCA has demonstrated a track record of addressing threats to the CPSD tiger beetle based on the best available information, and thus listing is not necessary to ensure the species' continued existence into the future.

*Our Response:* The Service is signatory to the 1997 CCA and 2009 reauthorization, and we have worked closely with the other signatories to develop and implement the additional conservation measures in the 2013 CCA Amendment. We agree that the 2009 CCA and the 2013 CCA Amendment provide significant conservation actions to benefit CPSD tiger beetle. As part of this rulemaking process, we conducted

an evaluation consistent with our Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE) (68 FR 15100) to evaluate the 2013 CCA Amendment. PECE analysis was performed on the conservation actions in the 2013 CCA Amendment to determine if these actions, which have yet to be implemented or to show effectiveness, will contribute to making listing CPSD tiger beetle as a threatened or endangered species unnecessary. The results of that analysis determined that there will be certainty of implementation (for those measures not already implemented) and certainty of effectiveness for the conservation actions specified in the 2013 CCA Amendment. Thus, we have determined that the measures will be effective at eliminating or reducing threats to the CPSD tiger beetle and the species no longer meets the definition of a threatened or endangered species.

*(18) Comment:* Utah congressional representatives requested that we: (1) Extend the original comment period for the proposed rule by 90 days; (2) extend the date by which the public can request a hearing on the proposal until 60 days into the 90-day extension; and (3) make all the resources cited in the proposed rule readily available on the Service website.

*Our Response:* The Service is committed to working closely with the public, governmental agencies, and nongovernmental groups to make certain that all comments, concerns, and relevant information are considered in our rulemaking process. However, court-mandated deadlines and statutory limitations of the Act limit the temporal flexibility we have to administer this rulemaking process. For example, the Service's

multi-district litigation settlement (*In re Endangered Species Act Section 4 Deadline Litigation*, No. 10-377 (EGS), MDL Docket No. 2165 (D.D.C May 10, 2011)) mandates completion of the Coral Pink Sand Dunes tiger beetle rulemaking within the standard timeline set forth in the Act. In addition, the time period by which the public can request a public hearing (45 days following publication of a proposal) is specified in the Act and cannot be extended. For these reasons, we were not able to provide a 90-day extension to the original proposed rule comment period. However, on May 6, 2013, we published in the **Federal Register** a notice of availability of the draft economic analysis for the proposed rule as well as other documents pertinent to the listing. We also reopened the comment period on the proposed rule for 30 days, and thus we accepted additional comments on the CPSD tiger beetle rulemaking. The two comment periods included: (1) October 2, 2012, to December 3, 2013; and (2) May 6, 2013, to June 5, 2013.

After the publication of the proposed rule in early October 2012, the Service received an informal request from Kane County Commissioners for a public hearing. In response to this request, we held an informational meeting and a public hearing on May 22, 2013, in Kanab, Utah. Notification of the meeting and the hearing was provided in the **Federal Register** and the Southern Utah News newspaper, which covers the local area.

The Service realized that we cited a significant number of sources for this rulemaking, and we wanted to ensure that those who wished to meaningfully comment had access to this information. Thus, during the first comment period (October 2012) the

Service made available on the Federal eRulemaking Portal all information sources cited in the proposed rule. These documents can be found at: <http://www.regulations.gov> with a search for Docket No. FWS–R6–ES–2012–0053.

*(19) Comment:* One commenter cites Knisley (2011, entire) as concluding that there is a lack of scientific evidence of the impacts of human-caused disturbances on CPSD tiger beetles, and available information is largely anecdotal and observational. In addition, the commenter indicated that the proposed rule acknowledges that the last 9 years of population data suggests that the threat of ORV use will not cause imminent extinction of the CPSD tiger beetle. The commenter was concerned that the listing of the CPSD tiger beetle could result in the closure or restriction of over 70 percent of the dunes to ORVs.

*Our Response:* Although Knisley (2011, entire) stated that there is relatively little literature or studies on the effects of anthropogenic disturbances on tiger beetles, he also reasoned that the sum of this information is especially important for assessing habitat disturbance. Overall, we used the best scientific and commercial information available for the purpose of making a listing determination for the CPSD tiger beetle, and we concluded that the species does not require listing as a threatened or endangered species under the Act.

*(20) Comment:* One commenter concluded that our determination to protect the dune area between Conservation Areas A and B is based on speculative, anecdotal, and

opportunistic information. The commenter stated that, by the scientists' own admission, little study of the areas outside the two conservation areas has been done in the past 20 years. However, the commenter notes that the Service supposes that beetles might be killed by ORVs operating between the two conservation areas, thus ORVs cause impacts to population dispersal. The commenter questioned the evidence to support the existence of a dispersal corridor between Conservation Areas A and B. The commenter indicated that furthermore, the Service previously stated in their Candidate Notice of Review (CNOR) for the species that, "The majority of traffic is concentrated in the play areas, and ORV use in these areas has no direct impact on the tiger beetle. The play areas have never been observed to support beetles, and likely did not have suitable habitat prior to ORV use due to vegetative succession, high winds and dune movement. Therefore, ORV use is likely only directly impacting the areas immediately surrounding the Conservation Areas."

*Our Response:* As stated in our response to Comment (1), additional information has been included in this determination and withdrawal document (see **Background**) stating that it is unclear if the Conservation Area B population is being maintained via dispersal from Conservation Area A. Regardless of whether the northern population maintains itself via natural reproduction and recruitment, by dispersing CPSD tiger beetles from the central population, or by some combination of the two, the dispersal corridor provides important habitat for the species for dispersal and potential colonization and will be important to offset the effects of climate change. The dispersal corridor area between Conservation Area A and B is, therefore, being permanently protected by 14

new habitat polygons that will be established as part of the 2013 CCA Amendment. Both this withdrawal document and the 2013 CCA Amendment incorporate new information that became available after the publication of the CNOR in 2011.

*(21) Comment:* State lawmakers are concerned that in the past researchers have been studying the CPSD tiger beetle without any input from the land managers with regard to the information they need in order to make sound management decisions. The commenters noted that working collectively, the Service, BLM, Utah State Parks, and Kane County can implement strategies and management objectives to improve the CPSD tiger beetle population. The commenters recommended that the Service withdraw the proposal to list the CPSD tiger beetle and continue using the existing CCA as an adaptive management strategy to improve CPSD tiger beetle populations.

*Our Response:* Management, research, and education efforts for the CPSD tiger beetle have been coordinated with land managers. For more than 15 years, CPSD tiger beetle management, research, and education efforts have been funded by BLM and executed in coordination with BLM and Utah State Parks land managers as well as the conservation committee that is composed of these agencies as well as the Service and Kane County. As part of the rulemaking process, we used the PECE process to evaluate the 2013 CCA Amendment. We determined that the CCA measures will be effective at eliminating or reducing threats to the CPSD tiger beetle and the species no longer meets the definition of a threatened or endangered species.

*(22) Comment:* State lawmakers stated that decisions that will have such a major impact on the land managers and the local economy should not be made in a regulatory vacuum. They stated that they would have liked greater transparency during the drafting of the CCA, which could have precluded the need for the proposed rule. State lawmakers also expressed concern that the current dune field was not considered as an exclusion area for critical habitat.

*Our Response:* Throughout the Service's process to evaluate the CPSD tiger beetle for listing and designation of critical habitat, the public has had opportunity to provide input. The Service requested information from the public as part of our evaluation, including two public comment periods following the publication of our proposed listing and critical habitat rule (77 FR 60208 and 78 FR 26308). The drafting of the 1997, 2009, and 2013 CCAs were also transparent processes that involved the signatory agencies of Kane County, Utah State Parks, BLM, and the Service. The comment relative to critical habitat designation is no longer relevant because we are withdrawing our proposed rule to list the CPSD tiger beetle.

*(23) Comment:* Multiple commenters stated that the economy of southern Utah depends heavily upon tourism and that limiting or closing the CPSD State Park to ORVs could have a significant adverse effect on the economies of Kanab and Kane County. Commenters stated that economic effects should be evaluated more thoroughly. In addition, commenters stated that the majority of CPSD State Park visitors come to participate in riding or observing ORVs across the sand dunes and surrounding areas and

significant restriction of ORV use at CPSD would force the State of Utah to close CPSD State Park. Commenters indicated such a closure would significantly impact the economies in the surrounding region. Commenters stated estimates of total positive economic impact of the CPSD State Park vary from \$733,584 to \$780,050.

*Our Response:* As discussed in the economic analysis, ORV restrictions resulting from the proposed listing of the species and designation of critical habitat are not expected to result in changes in visitation to CPSD State Park. Future shifting of dunes has the potential to restrict access such that ORV visitation would be expected to decrease. If ORV use decreased sufficiently to cause CPSD State Park to close, the resultant loss of \$780,050 in economic output associated with CPSD State Park is less than two-tenths of 1 percent of the county's total output. Thus, limiting or closing ORV use would not significantly affect the county's economy, although individual businesses may be impacted more than others. Regardless, this document withdraws our proposed rule to list the CPSD tiger beetle and designate critical habitat for the species.

*(24) Comment:* Kane County asked if the boundary lines along the southern and northern portion of Conservation Area A, as delineated by Figure 4 of the 2012 Conservation Studies Final Report, were intended to eliminate ORV traffic from traveling along the east side of the habitat areas.

*Our Response:* The recommendation of the researchers who wrote the report was to eliminate ORV traffic from traveling along the east side of Conservation Area A.



However, this closure was not incorporated into the 2013 CCA Amendment due to concerns for human safety, and the related expansion of Conservation Area A has allowed for the continued use of ORVs in these areas.

*(25) Comment:* Kane County asked us to discuss the survival rates of the CPSD tiger beetle eggs that are laid in the late summer and hatched in the spring of the following year, as well as the number of eggs that are viable/fertilized when they are laid. They also asked for information on the level of predation of the eggs or the loss from disease or parasites.

*Our Response:* We are not aware of any additional published information regarding CPSD tiger beetle egg ecology beyond what was provided in the proposed rule. However, additional information regarding CPSD tiger beetle egg ecology was provided by Dr. Barry Knisley via personal communication and has been incorporated into this final determination and withdrawal document (see *Life History* under **Background**).

*(26) Comment:* Some commenters noted that the Environmental Assessment that the Service prepared for the critical habitat designation stated that the Service does not have information on the dispersal habits of the CPSD tiger beetle, and it only presented population monitoring information from the central and northern populations. The commenters recommend that additional study should be done on the CPSD tiger beetle dispersal habits and population dynamics and that, if a decision to list the species under the Act were made now, it would be with incomplete information.

*Our Response:* The Act requires us to use the best commercial and scientific information available to make listing determinations. The best available information is often incomplete. As such, dispersal habitat of other tiger beetle species comprised the best information available at the time and was used to infer what the dispersal characteristics are of the CPSD tiger beetle. Similarly, past monitoring of the species primarily occurred at the central and northern populations. Additional studies are being planned through the 2013 CCA Amendment to better assess the dispersal habits and population dynamics of the CPSD tiger beetle.

*(27) Comment:* The commenters referred to Page 14, section 2.1.9 of the Environmental Assessment and asked what are the other natural or manmade factors that are specifically referred to and how are these evaluated by the EA or the process of managing the CPSD tiger beetle through the CCAs.

*Our Response:* This section of the Environmental Assessment that was prepared for the critical habitat designation is a summary of the significant threats identified in the proposed rule that are affecting the CPSD tiger beetle. The phrase “other natural or manmade factors affecting its continued existence” refers to listing Factor E, and includes: (1) sand dune movement; (2) climate change and drought; (3) small population effects; and (4) cumulative effects of all threats that may impact the species. In this withdrawal, we determined that these “other natural or manmade factors” are not a threat to the CPSD tiger beetle. These factors are being managed and their threat is reduced

through the 2013 CCA Amendment by protecting key occupied, dispersal, and future colonization habitats for the species throughout the CPSD geologic feature.

*(28) Comment:* The commenters stated that the area proposed as designated critical habitat includes the entirety of the northern 80 percent of the CPSD geologic feature, but much of this area does not currently support the CPSD tiger beetle. They requested an explanation of why the entirety of this area was proposed as critical habitat.

*Our Response:* CPSD tiger beetles are primarily found in conservation areas in the northern and central areas of the CPSD geologic feature; however, the species is found in significant numbers outside of Conservation Area A and thought to disperse from the central area to the northern area. Because CPSD tiger beetle habitat is dynamic and changes based on the effects of wind-driven dune movement, the habitat adjacent to occupied swales was included in the proposed critical habitat designation. In addition, habitat between the central and northern populations was included in the proposed critical habitat designation to include habitat that could be used for dispersal and could be colonized by new populations, thus providing redundancy for current populations and resiliency to climate change and drought. Regardless, we have determined that it is appropriate to withdraw the proposed listing rule for the CPSD tiger beetle, and critical habitat will not be designated for this species.

*(29) Comment:* Commenters expressed concern that designation of critical habitat may not include all habitat eventually determined as necessary to recover the species.

*Our Response:* As explained in the proposed rule, proposed designated critical habitat for this species was delineated to include the physical and biological features that are essential to the conservation of the CPSD tiger beetle. Furthermore, the species was never known to occur outside of the CPSD geologic feature, and we concluded that designating critical habitat outside of the historical range of the species was not necessary to conserve this species.

*(30) Comment:* One commenter found the economic analysis seriously flawed in that it focuses mainly on the costs of the Act's Section 7 consultations, development of incidental take permits (federal and state enforcement), and consumer surplus losses. The commenter requests that the analysis investigate and analyze the effects on local businesses in Kane County and surrounding areas.

*Our Response:* Although the primary purpose of the economic analysis is to identify and value the direct coextensive impacts of the listing and critical habitat designation, the analysis also considers the indirect impact of the proposed action on the regional economy in Section 3.2 and small businesses in Section 6 (USFWS 2013, entire). The analysis recognizes that particular businesses catering exclusively to ORV users may experience larger impacts relative to other businesses; however, the total

impact to the county is not expected to be significant because (1) the proposed action has the potential to restrict ORV use but does not eliminate ORV use, (2) any decline in visitation to CPSD State Park has the potential to increase visitation to other ORV areas resulting in benefits to businesses in those areas, and (3) the county contains several other tourism attractions that account for the majority of the local tourism-based economy.

*(31) Comment:* The commenter states that the conservation benefits section of the Environmental Assessment implies that the decision has already been made to close the CPSD State Park to ORV traffic. The commenter requests that prior to finalizing the Economic Analysis, the Environmental Assessment should have been reviewed for its analysis and conclusions.

*Our Response:* It should be noted that the proposed rule did not suggest eliminating ORV use. The conservation benefits section of the draft environmental assessment does not indicate the extent to which ORVs would be restricted as it had not yet been determined. However, the proposed rule to list the CPSD tiger beetle is being withdrawn, and critical habitat is not being designated. The 2013 CCA Amendment provides some increased ORV restrictions and protection for the CPSD tiger beetle.

*(32) Comment:* One commenter suggested that the purpose of the economic analysis is to determine what is best for the CPSD tiger beetle and still allow all forms of recreation on the CPSD.

*Our Response:* The purpose of the economic analysis is to evaluate the potential economic impacts associated with the proposed critical habitat designation for CPSD tiger beetle. The analysis considers current and future impacts to both the economic efficiency and distribution that may result from efforts to protect the CPSD tiger beetle and its habitat.

*(33) Comment:* One commenter stated that the revenue generated by ORV use in Kane County, and particularly at the CPSD State Park, should be evaluated in more detail than is presented in the economic analysis.

*Our Response:* The economic analysis provides information regarding the revenue generated by ORV use in Utah on page 3-8. It should be noted that the proposed action had the potential to restrict ORV use but did not propose to eliminate ORV use. However, under this withdrawal, the species is not being listed under the Act and critical habitat is not being designated.

*(34) Comment:* The commenter finds the definition of “surplus losses” in the economic analysis to be highly subjective and of little value when determining financial losses to local businesses.

*Our Response:* The definition of and methodology for consumer surplus loss estimates presented in the economic analysis are widely recognized in the field of economic analysis. Consumer surplus loss measures losses only to consumers, not to

businesses. The objective of the economic analysis is to determine the economic impact of the proposed rule. The proposed action was not anticipated to have a significant impact overall on local businesses given the limited number of visitors and businesses impacted (see Section 3.2). However, under this withdrawal, the species is not being listed under the Act and critical habitat is not being designated.

*(35) Comment:* The commenter requests clarification of the following statement from the economic analysis: “costs associated with uncertainty and misperception of the regulatory burden imposed by critical habitat designation” and a definition of “misperception of regulatory burden.”

*Our Response:* The misperception of regulatory burden refers to the difference between the actual restrictions imposed as a result of the proposed critical habitat designation and the way the public perceives the restrictions. In some cases, the public may perceive restrictions to be above and beyond the actual restrictions implemented as a result of the proposed action. Costs associated with uncertainty and misperception of the regulatory burden imposed by critical habitat refers to any economic impacts resulting from this difference in actual versus perceived restrictions.

*(36) Comment:* The commenter states that the economic analysis did not include contact with business owners (motels/hotels, gas stations, mechanics, restaurants, or ATV rental businesses) in Kane County, or else did not provide documentation of those contacted.

*Our Response:* We contacted 10 hotels, 1 RV Park, and 2 ORV rental businesses in Kanab, UT, to collect information for the economic analysis. Only three of the hotels responded to our calls.

#### *Federal Agency Comments*

*(37) Comment:* The BLM stated that implementation of the CCA has been an effective tool in the management and recovery of the CPSD tiger beetle. They indicated as habitat management changes become necessary, such as adjustments in conservation area boundaries due to shifting dunes or tiger beetle population migration, these actions are easily accommodated by the CCA. The BLM is concerned that, should the beetle become listed, the management flexibility currently provided by the CCA would be unavailable and replaced by the more formal mandates of the Act.

*Our Response:* The Service makes listing determinations solely on the basis of the best scientific and commercial data available after conducting a review of the status of the species and after taking into account efforts to protect the species. Thus, the issue of future management flexibility cannot be taken into consideration as part of the determination. Regardless, our decision in this document is to withdraw the listing proposal for the CPSD tiger beetle. The beetle will continue to be managed under the 2013 CCA Amendment.



*(38) Comment:* The BLM noted that the proposed designated critical habitat located on BLM-administered lands is located within the Moquith Mountain Wilderness Study Area (WSA). They stated that ORV use is restricted in the WSA to open dune areas, and no land disturbances or uses that would affect the wilderness characteristics of the area are allowed. They indicated that it can reasonably be assumed that no BLM-authorized activities would adversely modify the proposed critical habitat for the CPSD tiger beetle.

*Our Response:* The proposed rule states that the northern portion of the CPSD feature is located within the WSA, and that the northern population of the CPSD tiger beetle is located in Conservation Area B, which is a 150-ha (370-ac) protected area within the WSA. Our decision in this document is to withdraw the proposed rule to list the CPSD tiger beetle; therefore, the critical habitat designation is also withdrawn.

*(39) Comment:* The BLM stated that the Service's not warranted 12-month finding on four Great Basin butterflies gave significant consideration to BLM's management regulations and policies, which included: (1) Numerous laws, regulations, and policies that have been developed to assist the agency in management of their lands, including National Environmental Policy Act (NEPA) analysis; (2) BLM's usage of Resource Management Plans (RMPs) to provide a framework and programmatic guidance for site-specific activity plans regarding livestock grazing, oil and gas development, travel management, wildlife habitat management and other activities; and (3) BLM policy and guidance for species of concern occurring on BLM-administered

lands as addressed under BLM's 6840 Manual "Special Status Species Management". As a result of the conservation benefit that these regulations and policies provide to CPSD tiger beetle, the Service should not list the species.

*Our Response:* The Service described the BLM's management regulations and policies in the proposed rule and acknowledged the conservation benefits these actions provide to the CPSD tiger beetle. We are withdrawing the proposed rule to list the CPSD tiger beetle in large part due to conservation measures that are ongoing and have been implemented through the CCA, including the most recent 2013 CCA amendment, as described in this withdrawal.

*(40) Comment:* The BLM agrees that ORV use is a factor affecting CPSD tiger beetle population numbers and habitat. However, the BLM stated greater credence should be given to climate-related factors that are beyond the control of any management agency, especially rainfall. The BLM cited Dr. Knisley's 2008 study, "As a result of our long term studies with this beetle and additional experience with tiger beetles, we have become convinced that rainfall is the primary factor controlling population size and the changing dynamics."

*Our Response:* Although rainfall amounts, drought, and other climate-related factors cannot be directly affected by management actions, corresponding conservation actions such as controlling ORV use can have a positive effect on the CPSD tiger beetle and its habitat, thus making the species more resilient to climate-related factors.

Likewise, increasing the number of populations of the species on the landscape increases the species' redundancy by allowing for geographically distinct populations that have the potential of being acted on separately by climatic threats. The 2013 CCA amendment addresses all threat factors and provides appropriate conservation actions to address ORV use and impacts to habitat caused by climate change

*(41) Comment:* BLM agrees that the population trend is currently stable to increasing. BLM does not think that the assumption can be made that the overall trend since 1992 is in decline as there was a major change in inventory and monitoring methods in 1997. BLM states that any discussion on population trends should be based only on data obtained since 1997, as the method used prior to that time tended to overestimate population numbers and cannot be compared to the current inventory method. BLM notes that as Dr. Kinsley notes in his reports, comparisons of population size before and after 1998 are not valid.

*Our Response:* We agree with this interpretation of CPSD population data and have adjusted our analysis accordingly (see *Population Size and Dynamics* in **Background**).

*(42) Comment:* BLM suggested that the Service provide information with Figure 2 in the proposed rule, which shows annual and monthly precipitation amounts. They stated that the correlation between precipitation and beetle populations is striking and lends credibility to the thesis that climate is the primary factor in beetle population trends.

BLM is planning to install a climate monitoring station at the CPSD feature to ensure availability of more accurate climate data.

*Our Response:* We agree that precipitation is a significant natural environmental factor affecting the species, and we support the addition of climatic data in the future to associate with CPSD tiger beetle population trends. We believe our rulemaking process properly evaluated the potential effects of precipitation and climate change.

*(43) Comment:* BLM concludes that ORV use is a rather minor impact compared to natural climatic events and patterns. They stated that the discussion in the proposed rule leads the reader to understand that ORV use is the major cause of population decline, which is not the case. The BLM indicated that the issue is further complicated by the discussion on page 60217 (first column, second paragraph) in which the Service states that, “We do not have specific data regarding the level of impact ORVs have on the CPSD tiger beetle in the unprotected area between Conservation Area A and B.” They stated that more study is needed to determine the actual impact that ORV use has on the beetle.

*Our Response:* ORV use was the most significant human-induced threat to CPSD tiger beetle that was identified in the proposed rule. It is true that we do not have specific data regarding the level of impact of ORVs. We agree that precipitation is a significant natural environmental factor affecting the species. However, we have determined that

neither factor results in a need to list the species as threatened or endangered, and we are withdrawing our proposed rule.

*(44) Comment:* BLM asked what the precipitation pattern was the year preceding the information provided on Page 60217 of the proposed rule that, “The year following removal of ORV use, the tiger beetle density on this swale more than doubled to 150 beetles....” BLM wondered if the precipitation pattern could have been a factor in the increase of beetle numbers.

*Our Response:* We have included the precipitation information in our discussion of ORV use in this document (see ORV use under *Factor A.*).

*(45) Comment:* The BLM stated that the data in Table 1 of the proposed rule is out of date and should be updated with new survey information that used more accurate monitoring procedures implemented in 1998.

*Our Response:* In the proposed rule, Table 1 presents information regarding number of adult CPSD tiger beetles found injured or killed (by ORVs) before and after high ORV use holiday weekends. More recent data are not available, but we believe the available data are an accurate portrayal of the direct impacts to CPSD tiger beetle that can be expected from ORVs.

*(46) Comment:* BLM agrees with the discussion and conclusions for Factors B and C in the proposed rule.

*Our Response:* Comment noted.

*(47) Comment:* BLM concurs with the discussion of sand dune movement in the proposed rule. They stated that it will be necessary to continually adjust the boundaries on the Conservation Areas to compensate for dune movement. BLM believes that this is best done through continued implementation of the CCA and the flexibility that it provides.

*Our Response:* Adaptive management of conservation boundaries in response to dune movement is included in the 2013 CCA Amendment, as discussed in this document.

*(48) Comment:* BLM asked for clarification on information the Service provided in the proposed rule (Page 60229), stating that, “The remaining 460 ha (1,138 ac.) are open to ORV use.” The BLM does not believe this statement is technically correct. They stated that the 2000 amendment to the Vermilion Management Framework Plan affirmed allowable ORV traffic over open sand dunes within the Moquith Mountain WSA but outside of the conservation area for the beetle. They also stated that the 2008 Kanab Resource Management Plan continued that action, but also specified that “all vehicles on the dunes are required to stay at least 10 feet from vegetation.”

*Our Response:* Within the CPSD feature, BLM-managed lands include 150 ha (370 ac) that are closed to ORV use; and approximately 445 ha (1,100 ac) that are available for ORV use outside of the Conservation Area B on BLM lands, but with the stipulation that ORVs stay on open dunes and maintain a 3-m (10-ft) buffer around vegetation. BLM and Utah State Parks sufficiently enforce ORV restrictions for Conservation Areas A and B. However, enforcement is minimal on lands that are not designated for protection with carsonite posts and primarily relies on voluntary compliance. Thus, we have no record of enforcement effort or success of the buffer around vegetation, but Service staff have observed ORV tracks though vegetation and within the vegetation buffer distance.

*(49) Comment:* BLM assumed that Dr. Knisley would be one of the peer review experts and indicated they fully support his inclusion as a peer reviewer. They stated that Dr. Knisley has a long history of quality work with the beetle, and BLM trusts his findings. The BLM recommended that the other peer review experts be chosen from local universities who have experience working with the CPSD tiger beetle. They asked that the Service notify them of the selected peer reviewers and their findings.

*Our Response:* We asked Dr. Knisley, Dr. Charles Gowan, and Dr. Leon Higley to provide peer review of the CPSD tiger beetle proposed rule, and Dr. Knisley and Dr. Gowan provided their reviews of the rule. Their comments are part of the rulemaking record and are available to the public through the <http://www.regulations.gov> website.

This withdrawal also incorporates information and addresses the comments provided by the peer reviewers.

#### *Public Comments*

*(50) Comment:* Commenters stated that the Service relied upon insufficient evidence to analyze threats to the CPSD tiger beetle and that the Service selectively overlooked uncertainties and data gaps as well as evidence of increases in the species' population. Comments reflected dissatisfaction with the use of population monitoring information that did not cover the entire CPSD geologic feature; that sampling methods had changed during the period of record reported and this was not disclosed; and that the population viability analysis was used as a basis for listing.

*Our Response:* We acknowledge that the science regarding the CPSD tiger beetle may not be complete, but we must base our decisions on the best scientific information available when making listing determinations under the Act. We corrected the discrepancy portraying data that were collected using different methods, and it is included in this withdrawal. In our proposed rule and this final determination, we used the best available scientific information to support our decision. Any new information that was provided, such as the 2012 surveys, was incorporated into the information in Species Information, above. The appropriateness of including PVA analysis in our decision is addressed above as well (see *Population Viability Analysis* under **Background**).



*(51) Comment:* Multiple commenters stated that the allegations of climate change-based threats are speculative, artificially conflated with harms from ORV use, and not supported by the record.

*Our Response:* In summary, climate change is occurring and there is strong scientific support for projections that warming will continue through the 21st century (see Climate Change and Drought under *Factor E.*). Regional projections indicate the Southwest, including southern Utah, may experience the greatest temperature increase of any area in the lower 48 States. Because of increased temperature, Utah soils are expected to dry more rapidly and this is likely to result in reduced soil moisture levels in CPSD tiger beetle habitat. This analysis is well documented and supported in the proposed and this final determination. In addition, the proposed rule thoroughly explains the effects ORVs can have to CPSD tiger beetle habitat and the species reliance on soils with the correct moisture levels. Please see the discussion on Climate Change and Drought, below, for additional discussion. However, our conclusion is that the effects of climate change are not a threat to the CPSD tiger beetle, and we are withdrawing our proposal to list the species.

*(52) Comment:* A commenter stated that the Act does not authorize the Service to list a species that is not in need of recovery.

*Our Response:* Under the Act, we can determine that a species is an

endangered or threatened species based on any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) Overutilization for commercial, recreational, scientific, or educational purposes; (C) Disease or predation; (D) The inadequacy of existing regulatory mechanisms; or (E) Other natural or manmade factors affecting its continued existence. However, our analysis of these factors shows that the species does not warrant listing as threatened or endangered, and we are withdrawing our proposal to list the species.

*(53) Comment:* One commenter stated that if the Service lists the CPSD tiger beetle as threatened and counts climate change as among the threats to the species, then the Service should consider proposing a special rule under section 4(d) of the Act to exclude otherwise lawful activities, such as greenhouse gas emissions, from those actions that others may allege to constitute as “take” of the CPSD tiger beetle.

*Our Response:* A special rule under section 4(d) can be issued for species listed as threatened species under the Act; however, we are withdrawing our proposal to list the CPSD tiger beetle as a threatened species.

*(54) Comment:* Several commenters stated that the CPSD tiger beetle should be listed with designated critical habitat as detailed in the proposed rule, and that the previous CCA as well as the 2013 CCA Amendment do not fully address the threat of ORV use. These commenters indicated that extensive ORV use is permitted across the majority of CPSD State Park and in the areas between the ‘islands of habitat’ (as

specified in the 2013 CCA Amendment) located between the two populations. The commenters stated the use of ORVs is also permitted (although restricted) on the BLM lands surrounding the northern population. The commenters believe the tiger beetle remains vulnerable to impacts from illegal ORV use, both in its occupied habitat and in the area between the two populations.

*Our Response:* At the time of publication of the proposed rule, threats to CPSD tiger beetle included negative effects of ORV use. The threat of ORV use has been addressed in the 2013 CCA Amendment by creating additional protective habitat surrounding Conservation Area A (24 ha (59 ac)), and in polygons between Conservation Areas A and B (106 ha (263 ac)) that will allow for CPSD tiger beetle dispersal and colonization. See answer to Comment (48), *Factor D. The Inadequacy of Existing Regulatory Mechanisms*, and **Ongoing and Future Conservation Efforts** for additional information.

*(55) Comment:* One commenter stated that the 2013 CCA Amendment should be adequate to protect CPSD tiger beetle if the proposed open area on the east side of Conservation Area A is reduced to a carefully sited and clearly demarcated trail, no more than two vehicles wide, through the area of unstable dunes on the east side, that is laid out with direction of Dr. Knisley and the Service, with the cooperation of CPSD State Park and a representative of the ORV community.

*Our Response:* We did not demarcate an ORV trail on the east side of Conservation Area A as part of the conservation actions of the 2013 CCA Amendment. This option was discussed but deemed unsafe for ORV use by CPSD Park personnel.

*(56) Comment:* One commenter stated that Dr. Knisley's methods are pioneering, consistent, detailed, reliable, and as thorough as possible given limited time and budget. The commenter stated that his work supports the conclusion that the species is habitat limited and that its habitat is subject to change and has changed over the period of study.

*Our Response:* We have included the analysis of much of Dr. Knisley's CPSD tiger beetle work in our proposed rule and this withdrawal of the proposed rule.

*(57) Comment:* One commenter concluded that it is clear that the dunes are moving, and cited Dr. Knisley's work over the past decade as evidence of consistent movement of the dune crests. This commenter believed that restricting critical habitat to the currently occupied habitat would not allow the freedom of the dunes to move as natural forces dictate. The commenter opined that to protect the dunes ecosystem, including the CPSD tiger beetle and all of the resources upon which it depends, the dunes must have room to move and a source of sand and wind consistent with the history of the ecosystem over ecological time.

*Our Response:* We are withdrawing our proposed listing and critical habitat designation. The 2013 CCA Amendment includes adaptive management processes that are intended to account for dune movement (see Table 2).

*(58) Comment:* One commenter stated that carsonite posts and the potential threat of being ticketed by an overworked ranger are not sufficient barriers to ORV use. The same commenter expressed concern that funding of the CCA could be cut, discontinued, or weakened.

*Our Response:* Demarcation of Conservation Area A with carsonite posts has been effective at protecting CPSD tiger beetle for the last 15 years, and we are confident that this method will be effective for new locations as well. Conservation actions directed by the 1997 and 2009 versions of the CCA have been consistently funded by the Service, BLM, and Utah State Parks since the CCA was signed, funding has been committed for the next 10 years as part of the 2013 CCA Amendment, and we are confident that it will continue into the future. Since signing of the original CCA in 1997, the document was renewed on a standard timeline (2009) and has since become even stronger and provided more conservation with the 2013 amendment.

*(59) Comment:* Commenters urge the Service to continue ongoing discussions with the BLM, Utah State Parks, and Kane County Commissioners about updating the existing Conservation Agreement. The commenters stated that any protections necessary

for the CPSD area are best developed through this process, and this process serves the local community best.

*Our Response:* We agree. The 2013 CCA Amendment was signed by these entities in March 2013 and discussions will continue on an annual basis to further conservation of the CPSD tiger beetle through associated monitoring, research, education, and habitat protection actions.

*(60) Comment:* One commenter stated that the area currently under consideration for designation as critical habitat exceeds the area that is absolutely necessary to conserve CPSD tiger beetle.

*Our Response:* The area considered in the proposed rule for critical habitat designation included those areas that provide sufficient elements of physical or biological features necessary to support CPSD tiger beetle life-history processes. However, we have withdrawn our proposal to list the CPSD tiger beetle and designate critical habitat. The 2013 CCA Amendment provides sufficient habitat protection to reduce threats to the species from ORV use, small population size, drought, and climate change.

*(61) Comment:* One commenter shared that, 20 years ago, motorized versus non-motorized use at the CPSD feature was divided 50/50; however, more recently, a 2001 CPSD State Park visitor survey indicated a conflict between motorized and non-motorized use, stating that 80 to 90 percent of visitors were offended by issues involving

safety, tracks, and noise. The commenter noted that as reported in the Southern Utah News (September 19, 2001), visitor surveys indicate visitors oppose motorized use at the Sand Dunes. The commenter said the article further stated that, although motorized use constitutes the majority of activity on holiday weekends, visitor expectation is for a more pristine experience like they have at the Grand Canyon and Zion National Parks. The commenter indicated that these data make clear that motorized use within the CPSD State Park and the Moquith Mountain WSA is not the economic driver of the area. The commenter additionally stated that, based on these data, it is likely that economic benefit may actually flow from critical habitat designation as a substantial number of non-motorized users begin to revisit both the CPSD State Park and the Moquith Mountain WSA as a result of restricted ORV use.

*Our Response:* The Service has limited information regarding user conflicts or preferences at the CPSD dune geologic feature; however, this issue is outside of the scope of our rulemaking process. Please see *Comment (23)* for information on the economic benefits of motorized use in the CPSD to the economy of Kane County. Nevertheless, the proposed listing is withdrawn by this document and therefore no critical habitat will be designated.

### **Summary of Changes from the Proposed Rule**

Based upon our review of the public comments, comments from other Federal and State agencies, peer review comments, issues addressed at the public hearing, and any

new relevant information that may have become available since the publication of the proposal, we reevaluated our proposed rule and made changes as appropriate. Other than minor clarifications and incorporation of additional information on the species' biology, this determination differs from the proposal by:

- (1) Based on our analyses, the Service has determined that the CPSD tiger beetle should not be listed as a threatened species. This document withdraws the proposed rule as published on October 2, 2012 (77 FR 60208).
- (2) The addition of the **Ongoing and Future Conservation Efforts** section prior to the **Summary of Factors Affecting the Species** section, below. The conservation agreements are no longer discussed in detail in *Factor D. Inadequacy of Existing Regulatory Mechanisms*, but are included in the **Ongoing and Future Conservation Efforts** section.
- (3) The Service reevaluated population sampling information and has adjusted how sampling information is reported. This information is included in the **Background** section.

### **Ongoing and Future Conservation Efforts**

Below we summarize the 2009 CCA and the 2013 CCA Amendment that provide conservation benefits to the CPSD tiger beetle. We describe the significant conservation



efforts that are already occurring and those that are expected to occur in the future. We have also completed an analysis of the newly initiated efforts pursuant to our PECE policy on the 2013 CCA Amendment (Conservation Committee 2013, entire).

After the CPSD tiger beetle became a candidate species in 1997, a variety of conservation initiatives were put in place to conserve the species' habitat, while continuing ORV activities in the area. The document that served as the foundation for the conservation of CPSD tiger beetle was the 1997 CCA, which was renewed in 2009 and amended in 2013 (Conservation Committee 1997, entire; Conservation Committee 2009, entire; Conservation Committee 2013, entire). This CCA provided the conservation framework necessary for the development of several collaborative conservation efforts that have benefited the CPSD tiger beetle. The proposed rule details these conservation measures in several locations within the document (77 FR 60208). In summary, the 1997 and 2009 CCAs coordinated or enacted conservation efforts over the last 15 years including:

- (a) Two conservation areas were established. Conservation Area A was 207 ac (84 ha), and Conservation Area B was 150 ha (370 ac) at the time of the 2009 CCA. ORVs were not allowed in these areas, and Utah State Parks and BLM staff have enforced this restriction. These conservation areas have protected significant CPSD tiger beetle habitat from ORV impacts.
- (b) Annual monitoring was conducted to evaluate population status, and habitat and population response to conservation actions.

- (c) Research efforts clearly defined the CPSD tiger beetle lifecycle and observed population fluctuations relative to fluctuations in rainfall.
- (d) A 2-year field study was completed that indicates supplemental watering has a significant and positive effect on recruitment of new CPSD tiger beetle larvae, their survival, and their speed of development.
- (e) Genetic studies were conducted and demonstrated that the CPSD tiger beetle is an independent species, rather than the subspecies it was considered when the original 1997 CCA partnership was established.
- (f) A population viability analysis was developed to determine the likelihood of extinction and the range of habitat required for the species to persist. The population viability model will serve as a useful tool to evaluate, adapt, and prioritize conservation strategies.
- (g) Educational materials were developed and are displayed and distributed at the CPSD State Park and BLM office.
- (h) A protocol for translocation was developed and beetles were translocated in a pilot effort to establish a more secure population at Conservation Area B.
- (i) The BLM Kanab Field Office revised its land use plan and included direction to implement measures identified in the CCA for CPSD tiger beetle management.

Despite the positive accomplishments of the 1997 CCA and 2009 CCA, the proposed rule identified several threats that were still negatively acting on CPSD tiger beetle and its habitat. Residual threats identified in the proposed rule included: (1)

continued habitat loss and degradation caused by ORV use; (2) small population effects, such as vulnerability to random chance events; (3) the effects of climate change and drought; (4) and cumulative interaction of the individual factors listed above (77 FR 60208, October 2, 2012). The proposed rule also determined that existing regulatory mechanisms were not adequately addressing the ORV-related threats to the species.

Based on information provided in the proposed rule, discussions with researchers, and onsite evaluations with the CCA partners, signatory agencies established a 2013 amendment to the 2009 CCA. This amendment outlined several new conservation actions that will be enacted to address the threats that were identified in our October 2, 2012, proposed rule (77 FR 60208) (Table 1). The 2013 CCA Amendment evaluated the most recent tiger beetle survey information and peer review comments from our proposed rule and concluded that modifications to the boundaries of the Conservation Areas are needed to ensure continued protection of the tiger beetle from ongoing threats (see Figure 1; Table 1; Conservation Committee 2013, entire).

Current survey information identified the species occurring in significant numbers south and east of the Conservation Area A boundary, as defined by the 2009 CCA (Knisley and Gowan 2013, entire). Therefore, the 2013 CCA Amendment will enlarge Conservation Area A from 207 ac (81 ha) to 266 ac (108 ha) (see Figure 1) to protect most of the known occupied habitats—the expansion of Conservation Area A protects 88 percent of the central population’s habitat. Posting of new habitat began in summer 2013 and will be completed by the end of the year. The Amendment also commits to

evaluating areas farther to the south of Conservation Area A where adults and larvae were found in 2012—this process was initiated in the spring of 2013, and the conservation committee is evaluating the need to provide additional protection to some of this habitat. In addition, the 2013 CCA Amendment provides protection for islands of habitat, totaling an additional 263 ac (106 ha), between Conservation Areas A and B (see Figure 1), with the intent of providing dispersal habitat for the species. Additional conservation measures of the 2013 CCA Amendment are listed in Table 1 and were evaluated for certainty of implementation and certainty of effectiveness with the PECE process. The Service’s detailed PECE analysis on the 2013 CCA Amendment is available for review at <http://www.regulations.gov> and <http://www.fws.gov/mountain-prairie/species/invertebrates/coralpinksanddunestigerbeetle/index.html>.

Table 1. Summary of conservation measures in the CPSD tiger beetle 2013 CCA Amendment (Conservation Committee 2013, entire).

Threat	Conservation Measure	Status
Habitat loss/ degradation and mortality associated with ORV use	<ul style="list-style-type: none"> <li>Utah State Parks agrees to expand the boundary of Conservation Area A to protect additional habitat while addressing diversity in recreation and maintaining safety standards for dune visitors. This area will be permanently expanded in 2013 from 207 ac (84 ha) to 266 ac (108 ha) (Figure 1), thus increasing protection of tiger beetle occupied swales from 48 percent to 88 percent for the central population. All new or expanded habitat areas will be demarcated with carsonite marking posts to facilitate compliance by CPSD State Park visitors.</li> <li>Utah State Parks and the BLM will protect vegetated habitat islands of connectivity between the central and northern conservation areas and monitor to ensure compliance. This action will occur in</li> </ul>	<ul style="list-style-type: none"> <li>Posting of the new Conservation Area A boundary began in summer 2013 and will be completed by the end of the year.</li> <li>Posting of 14 new habitat patches began in summer 2013 and will be completed by the end of the year.</li> <li>Habitat south of Conservation Area A was identified for protection by the Conservation Committee in spring 2013. Will have final configuration and be posted by end of 2013.</li> <li>Analysis of historical dune imagery will occur in combination with 3-year boundary analysis. Baseline dune analysis has been completed by Fenster <i>et al.</i> (2012).</li> <li>Plans to perform vegetation treatments have been discussed informally, but this action will be a low priority until new habitat areas are posted.</li> <li>Conservation boundaries will be reassessed in 2016.</li> <li>Enforcement of conservation boundaries is ongoing.</li> </ul>

	<p>2013 and will protect 263 ac (106 ha) of additional sand dune habitat comprising 14 individual habitat patches (Figure 1), which range in size from 2.6 ac (1.0 ha) to 37.1 ac (15 ha) each. All new or expanded habitat areas will be demarcated with carsonite marking posts to facilitate compliance by CPSD State Park visitors.</p> <ul style="list-style-type: none"> <li>• CPSD tiger beetle adults and larvae were found south of Conservation Area A in 2012. The conservation committee visited this area in spring of 2013 to determine which additional habitats will be protected to support the tiger beetle (Figure 1). All conservation committee members agreed that several swales should be protected. The exact size and configuration of these protected areas are currently being determined by CPSD tiger beetle researchers and members of the conservation committee. All new or expanded habitat will be finalized by late 2013 and</li> </ul>	
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	<p>demarcated with carsonite posts to facilitate compliance by CPSD State Park visitors.</p> <ul style="list-style-type: none"> <li>• The conservation committee will analyze available historical aerial imagery, and other data, to better understand dune movement and associated vegetation changes as they relate to beetle occupation and suitable habitat over time. Knowledge of dune movement patterns will be used in adaptive management planning to accommodate dune changes and the need to alter conservation area boundaries.</li> <li>• The conservation committee will conduct experimental vegetation treatments within existing conservation areas to determine if this could be an effective mechanism to increase suitable habitat.</li> <li>• The conservation committee will revisit conservation area boundaries on a routine cycle (every 3 years) and make necessary adjustments to these boundaries as a result of shifting</li> </ul>	
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	<p>dunes, vegetation changes, population increases and decreases, and resulting changes to suitable habitat.</p> <ul style="list-style-type: none"> <li>• Utah State Parks and the BLM will continue efforts in law enforcement, education, and outreach.</li> </ul>	
Vulnerability to stochastic events due to small population size	<ul style="list-style-type: none"> <li>• We are not aware of any additional populations of CPSD tiger beetle outside of the CPSD formation. However, the conservation committee believes it is appropriate to continue surveys for this species in the area. The conservation committee will identify potential habitat within a 50-mile radius of the CPSD formation using aerial imagery and survey for CPSD tiger beetle presence and habitat suitability. If appropriate habitat is found, the area will be considered for experimental introduction.</li> <li>• The conservation committee will increase research effort in experimental translocations in Conservation Area B</li> </ul>	<ul style="list-style-type: none"> <li>• Utah DNR has successfully advertised (proposal submitted) a request-for-proposals to begin effort to search for potential habitat within 50 mile radius.</li> <li>• Annual monitoring which happens each spring will include newly protected habitat and will include translocation efforts as appropriate.</li> </ul>



	<p>and evaluate new habitat islands for appropriateness for reintroduction efforts.</p> <ul style="list-style-type: none"> <li>• The conservation committee will introduce individuals into suitable habitats (potential sites have been identified between Conservation Areas A and B), monitor these sites, and revise translocation activities via an adaptive management process.</li> </ul>	
Inadequacy of existing regulatory mechanisms	<ul style="list-style-type: none"> <li>• Utah State Parks and the BLM have done a creditable job of enforcing the protection boundaries of Conservation Areas A and B for approximately the last 15 years. This amendment increases the size of Conservation Area A by 59 ac (24 ha), and the conservation committee will consider further protection of habitats to the south of Conservation Area A (see Habitat loss/degradation and mortality associated with ORV use, above). In addition, the 2013 CCA Amendment establishes 14 habitat patches to support dispersal of tiger</li> </ul>	<ul style="list-style-type: none"> <li>• Status of habitat protection actions as described above will regulate ORV use.</li> <li>• Enforcement of conservation areas is ongoing.</li> </ul>

	<p>beetles between Conservation Areas A and B, increasing the total protected area by an additional 263 ac (106 ha). Because these signatory agencies have complied with the Conservation Agreement and Strategy for the last 15 years, it can reasonably be concluded that the BLM and Utah State Parks will continue to properly enforce the boundaries of all protected areas.</p>	
Climate change and drought	<ul style="list-style-type: none"> <li>• The BLM began installing a weather station onsite in spring 2013 to better correlate weather patterns with CPSD tiger beetle abundance (note—this action will be completed in fall 2013). Understanding the effects of weather patterns on CPSD tiger beetle populations will help the conservation committee develop adaptive management strategies by identifying important habitat use areas during particularly dry or warm years.</li> <li>• The establishment of 14 additional habitat patches totaling 263 ac</li> </ul>	<ul style="list-style-type: none"> <li>• Weather station was installed in summer 2013 and is providing data.</li> <li>• Posting of 14 new habitat patches began in summer 2013 and will be completed by the end of the year.</li> </ul>

	<p>(106 ha) will occur at higher elevations in the sand dune area, and at locations that provide significant vegetated habitat. This has the potential to offset the drying and warming effects of climate change and drought on CPSD tiger beetle habitat. In addition, these habitat polygons will provide dispersal habitat and connectivity between Conservation Areas A and B. This will better allow the tiger beetle to disperse to potentially cooler and wetter habitat that occurs in Conservation Area B.</p>	
Cumulative effects of the above	<ul style="list-style-type: none"> <li>Addressing the threats listed above independently will prevent these threats from acting cumulatively.</li> </ul>	<ul style="list-style-type: none"> <li>Some conservation actions have been completed, some are ongoing, and the most significant ones (habitat protection) will be completed by the end of 2013. See above for more information regarding status of individual actions.</li> </ul>

## **PECE Analysis**

The purpose of PECE is to ensure consistent and adequate evaluation of recently formalized conservation efforts when making listing decisions. The policy provides guidance on how to evaluate conservation efforts that have not yet been implemented or have not yet demonstrated effectiveness. The evaluation focuses on the certainty that the conservation efforts will be implemented and effectiveness of the conservation efforts. The policy presents nine criteria for evaluating the certainty of implementation and six criteria for evaluating the certainty of effectiveness for conservation efforts. These criteria are not considered comprehensive evaluation criteria. The certainty of implementation and the effectiveness of a formalized conservation effort may also depend on species-specific, habitat-specific, location-specific, and effort-specific factors. We consider all appropriate factors in evaluating formalized conservation efforts. The specific circumstances will also determine the amount of information necessary to satisfy these criteria.

To consider that a formalized conservation effort contributes to forming a basis for not listing a species, or listing a species as threatened rather than endangered, we must find that the conservation effort is sufficiently certain to be (1) implemented, and (2) effective, so as to have contributed to the elimination or adequate reduction of one or more threats to the species identified through the section 4(a)(1) analysis. The elimination or adequate reduction of section 4(a)(1) threats may lead to a determination

that the species does not meet the definition of threatened or endangered, or is threatened rather than endangered.

An agreement or plan may contain numerous conservation efforts, not all of which are sufficiently certain to be implemented and effective. Those conservation efforts that are not sufficiently certain to be implemented and effective cannot contribute to a determination that listing is unnecessary, or a determination to list as threatened rather than endangered. Regardless of the adoption of a conservation agreement or plan, however, if the best available scientific and commercial data indicate that the species meets the definition of “endangered species” or “threatened species” on the day of the listing decision, then we must proceed with appropriate rulemaking activity under section 4 of the Act. Further, it is important to note that a conservation plan is not required to have absolute certainty of implementation and effectiveness in order to contribute to a listing determination. Rather, we need to be certain that the conservation efforts will be implemented and effective such that the threats to the species are reduced or eliminated.

Using the criteria in PECE (68 FR 15100, March 28, 2003), we evaluated the certainty of implementation (for those measures not already implemented) and effectiveness of conservation measures pertaining to the CPSD tiger beetle. We have determined that the measures will be effective at eliminating or reducing threats to the species because they protect occupied and suitable habitat, provide habitat and additional management information to address the effects of climate change and drought, and institute on-the-ground changes to better manage and regulate protected habitat and ORV

use. We have a high degree of certainty that the measures will be implemented because the conservation committee partners have an impressive track record of implementing conservation measures and CCAs for this species since 1997. Over approximately the past 15 years of implementation, BLM and Utah State Parks have effectively implemented conservation measures from the 1997 CCA and have monitored the CPSD tiger beetle population, conducted translocation and other research, established and enforced protection areas, and educated the public on the occurrence and importance of the species at the CPSD formation.

New conservation measures are prescribed by the 2013 CCA Amendment and are already being implemented, such as establishment of additional protected habitat areas and deployment of a weather station (see Table 1 in **Ongoing and Future Conservation Efforts** for more information on status of conservation efforts). The 2013 CCA Amendment has sufficient annual monitoring and reporting requirements to ensure that all of the conservation measures are implemented as planned, and are effective at removing threats to the CPSD tiger beetle and its habitat. The collaboration between the Service, Kane County, Utah Parks, and BLM requires regular committee meetings and involvement of all parties in order to fully implement the conservation agreement. Based on the successes of previous actions of the conservation committee, we have a high level of certainty that the conservation measures in the 2013 CCA Amendment will be implemented (for those measures not already begun) and effective, and thus they can be considered as part of the basis for our final listing determination for the CPSD tiger beetle.

Our full analysis of the 2013 CCA Amendment pursuant to PECE can be found at <http://www.regulations.gov>.

### **Summary of Factors Affecting the Species**

Section 4 of the Act and its implementing regulations (50 CFR 424) set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination. Each of these factors is discussed below.

#### *Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*

##### **ORV Use**

Loss of habitat is the leading cause of species extinction (Pimm and Raven 2000, p. 843). Insects are highly vulnerable to extinction through habitat loss (McKinney 1997, pp. 501–507), and ORV use has significantly impacted several species of tiger beetle nationwide. More specifically, ORV use has significantly impacted the CPSD tiger beetle’s habitat, range, and the beetle itself by directly killing beetles, damaging vegetation that supports prey items, directly killing prey items, and reducing soil moisture.

*Nationwide Context*—Nationwide, ORV use has drastically reduced or extirpated several tiger beetle populations. For example, ORV use and pedestrian traffic extirpated the Northeastern Beach tiger beetle, *Cicindela dorsalis dorsalis*, in several localities (Knisley 2011, p. 45). Similarly, within several years of the Assateague Island National Seashore (Maryland, USA) opening for ORV use, the White Beach tiger beetle, *C. d. media*, was extirpated from all but those areas where ORVs were restricted (Knisley and Hill 1992, pp. 138–139). Additionally, ORV use is responsible for eliminating tiger beetle populations in coastal southern California (Hairy-necked tiger beetle, *C. hirticollis grvida*), Oregon and Washington (Siuslaw hairy-necked tiger beetle, *C. h. siuslawensis*), and Idaho (St. Anthony Dune tiger beetle, *C. arenicola*) (Knisley 2011, p. 45).

*CPSD Tiger Beetle Mortality*—ORVs run over and thereby kill and injure CPSD tiger beetles (Hill and Knisley 1993, p. 14; Knisley and Gowan 2008, p. 23). The likelihood of being injured or killed increases if adult CPSD tiger beetle are run over on wet or compact substrates (e.g., moist swales) as compared to soft sands (e.g., dune faces)



(Knisley and Hill 2001, p. 390). The likelihood of being hit by ORVs also increases based on the level of ORV use. For example, the numbers of adult CPSD tiger beetles found injured or killed by ORVs increases substantially during periods of heavy use, such as during the Memorial Day holiday (Table 2; Knisley and Hill 2001, p. 390). We have no information quantifying the direct injury or mortality that ORVs cause to eggs or larval CPSD tiger beetle because these stages are underground and not easily monitored.

Table 2. A comparison of the number of adult Coral Pink Sand Dunes tiger beetles found injured or killed (by off-road vehicles) before and after a high ORV use holiday weekend (Memorial Day) from 1993 to 1998 (no survey conducted in 1995) (Knisley and Hill 2001, p. 390).

<b>YEAR</b>	<b>BEFORE MEMORIAL DAY WEEKEND</b>		<b>AFTER MEMORIAL DAY WEEKEND</b>	
	<b>Total Number Observed</b>	<b>Number Observed Killed or Injured</b>	<b>Total Number Observed</b>	<b>Number Observed Killed or Injured</b>
1993	No data	No data	179	14
1994	363	0	125	6
1996	231	2	287	41
1997	256	2	64	6
1998	168	1	278	8

We do not have specific data regarding the level of impact ORVs have on CPSD tiger beetles in the previously unprotected area between Conservation Areas A and B. It is likely that many of the beetles run over by ORVs in this area were injured or killed. Thus, the ability of adults to disperse between the central population and the northern population was likely negatively impacted by ORVs. The result of these ORV impacts is that the habitat between the central and northern populations has not provided a sufficient dispersal corridor for beetles or habitat for colonization (see Population Distribution). Thus, the proposed rule concluded that BLM protection of only Conservation Area B, and the absence of protection in the dispersal corridor, would result in the continued

threat of ORV use to the CPSD tiger beetle. However, the 2013 CCA Amendment provides for additional protected habitat surrounding Conservation Area A and for islands of habitat between Conservation Areas A and B, thus alleviating this threat to CPSD tiger beetles (see **Ongoing and Future Conservation Efforts**).

*Impacts to Vegetation*—As discussed above (see **Background, Habitat**) larval CPSD tiger beetles are more restricted to vegetated swale areas where the vegetation supports the larval prey base of flies, ants, and other prey species. Although adult CPSD tiger beetles are more mobile and can hunt prey species over a wider range of habitat types, vegetated swale habitat is still necessary to support adult prey items (see **Background, Habitat**). The effects of ORVs on vegetation are well documented and include crushing and uprooting of foliage and root systems and the accompanying erosion and drying of soils (Ouren *et al.* 2007, pp. 4–5; Switalski and Jones 2012, p. 14). The protection of Conservation Areas A and B, and islands of habitat between the Conservation Areas includes the protection of vegetated swale habitat, thus reducing the threat of ORV impacts to vegetation.

*Prey Mortality*—Food limitation has a significant impact on tiger beetle growth, survival, and fecundity, especially for desert species. Adult CPSD tiger beetles are, in some years, extremely food limited and exhibit reduced fecundity (Knisley and Gowan 2008, p. 19). Food limitation is at least partly caused by ORV use. ORVs reduce CPSD tiger beetle prey density and prey species diversity in the CPSD (Knisley and Gowan 2006, p. 19). Ants, a primary prey item, occur in much lower densities in areas

frequented by ORVs than in areas with no ORV traffic (Knisley and Gowan 2008, p. 23). In addition, low ORV use areas in the CPSD geologic feature have a higher diversity of prey species and higher numbers of prey items than high ORV use areas (Knisley and Hill 2001, p. 389).

Prey availability significantly affects the number of larvae produced by adult tiger beetles (Pearson and Knisley 1985, p. 165) and the survival of larval tiger beetles (Knisley and Juliano 1988, p. 1990). Low prey densities can result in prolonged development and decreased survivorship in larval tiger beetles and reduced size in adults, which lowers fecundity in females (Pearson and Knisley 1985, p. 165; Knisley and Juliano 1988, p. 1990). Low prey densities also require larval and adult tiger beetles to spend more time searching for food. For larval tiger beetles, this means more time near burrow entrances searching for prey, resulting in increased susceptibility to parasitism and predators (Pearson and Knisley 1985, p. 166). Similarly, adults that spend more time out of their burrows searching for food have an increased susceptibility to predation. The 2013 CCA Amendment protects the majority of known CPSD tiger beetle occupied habitat, thus reducing the threat of ORV impacts to prey availability.

*Reduction of Soil Moisture*—ORV use degrades larval habitat by reducing soil moisture. ORV use can reduce soil moisture by churning up soils and exposing the moisture that is locked between soil particles (beneath the surface) to greater evaporative pressure (Shultz 1988, p. 28; Knisley and Gowan 2008, p. 10). It also reduces soil

moisture by increasing soil compaction (Adams *et al.* 1982, p. 167). Compaction reduces water infiltration and reduces moisture retention in soils (Belnap 1995, p. 39).

As we discussed earlier (see *Habitat*), soil moisture is essential to the CPSD tiger beetle's life history. Extreme drying or desiccation kills tiger beetles (Knisley and Juliano 1988, p. 1990). In a dry environment, such as the CPSD geologic feature, organisms are constantly struggling to acquire and maintain enough water to survive. Reduced water availability is limiting to tiger beetles in CPSD, as evidenced by the fact that experimental water supplementation increased larval CPSD tiger beetle survival by 10 percent (Knisley and Gowan 2008 p. 20). CPSD areas protected from ORV use have significantly higher soil moistures and higher numbers of CPSD tiger beetles than adjacent ORV use areas (Knisley and Gowan 2008, pp. 10–11), therefore the protection of Conservation Areas A and B, as well as the islands of habitats between these two areas, reduces the threat associated with the loss of soil moisture from ORVs.

*Population Level Effects*—Available information shows the effects of ORV use on CPSD tiger beetle population numbers. For example, swales adjacent to but outside of Conservation Area A are similar in all apparent environmental conditions to swales within Conservation Area A with the exception of ORV impacts. However, CPSD tiger beetle abundance in ORV-impacted occupied swales is consistently lower than adjacent protected occupied swales, potentially because of ORV impacts (Figure 3).

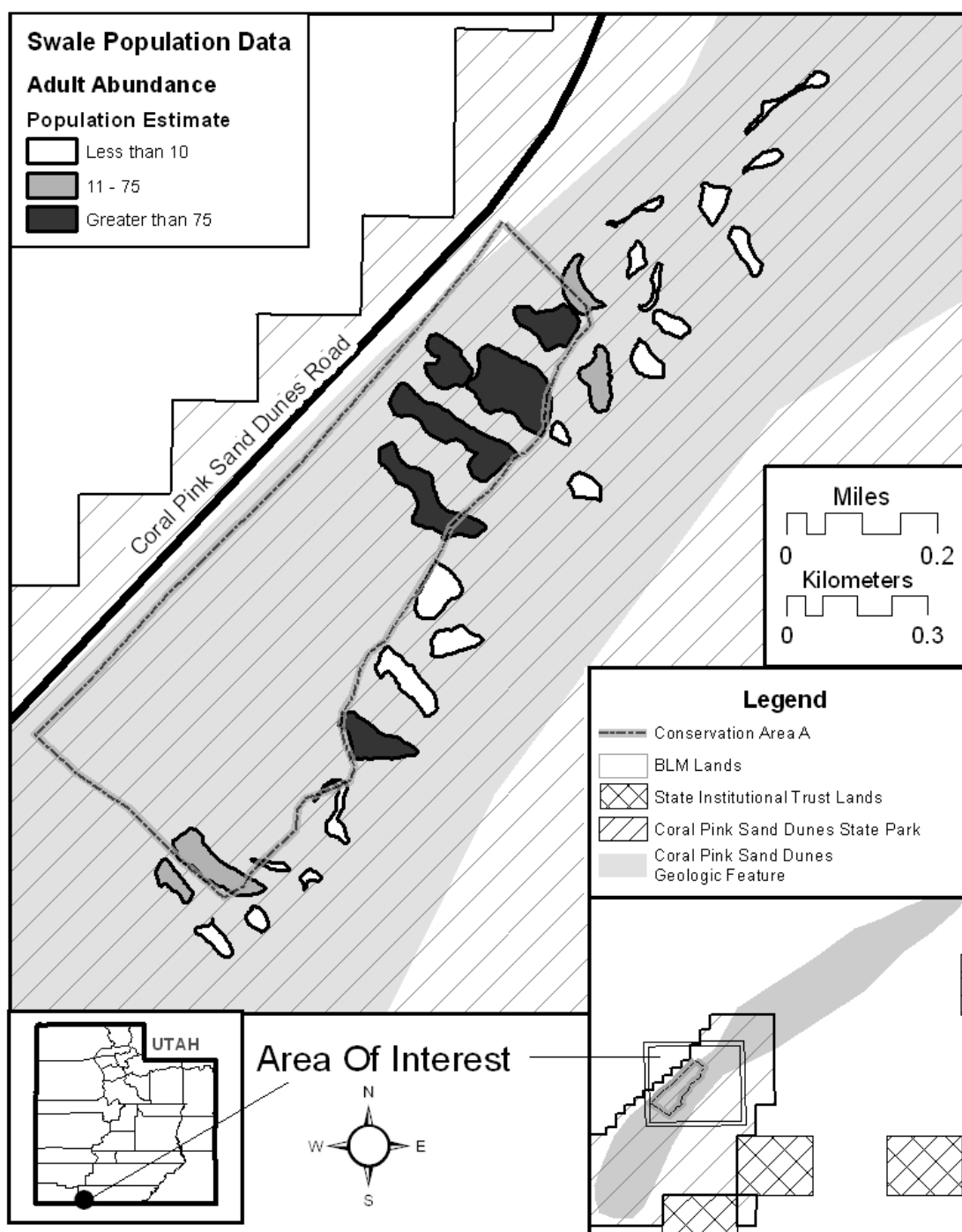


Figure 3. Adult abundance in 2006 for occupied swales within and outside Conservation Area A.

For example, one swale with ORV use had population counts of 60 or more CPSD tiger beetles in most years (Knisley and Gowan 2011, p. 11). Utah State Park staff, at the recommendation of the conservation committee, protected this swale from ORV use in 2010 (Knisley and Gowan 2011, p. 11). The year following removal of ORV use, the tiger beetle density on this swale more than doubled to 150 beetles, which also is the highest number recorded for the swale (Knisley and Gowan 2011, p. 11). This increase could not be attributed to an increase in moisture as rainfall levels were low and declining at this time (Knisley and Gowan 2011, p. 11). This action provides an example of how the conservation committee has used adaptive management to benefit the CPSD tiger beetle and demonstrates a rapid population response to removed ORV disturbance. The increased protection for Conservation Area A and islands of habitat between Conservation Areas A and B provided by the 2013 CCA Amendment reduces the potential threat of ORV use to population-level effects. In fact, it is likely the increased protection will result in increased tiger beetle populations in these areas.

*CCA Protections*—The 2009 CCA conservation actions evaluated in the proposed rule protected the entirety of the northern population of CPSD tiger beetle but only 48 percent of the swale habitat occupied by the CPSD tiger beetle in the central population and none of the dispersal corridor habitat (see Table 1). Since the publication of the proposed rule, the 2013 CCA Amendment has been signed and the conservation committee has committed to: (1) expanding Conservation Area A boundaries to protect 88 percent of the central population from ORV use; (2) protecting a total of 263 ac (106

ha) of vegetated habitat islands of connectivity between the central and northern conservation areas from ORV use and monitoring to ensure compliance; and (3) visiting the area south of Conservation Area A (where significant numbers of CPSD tiger beetle larvae and adults have been found) in spring of 2013 to determine what additional habitats should be protected from ORV use to support the tiger beetle. The size and configuration of any protected areas south of Conservation Area A will be determined during the 2013 field season with input from all members of the conservation committee.

All new or expanded protected habitat areas will be demarcated with carsonite posts to facilitate compliance by CPSD State Park visitors. The conservation committee will revisit conservation area boundaries on a routine cycle (every 3 years) and make necessary adjustments as a result of shifting dunes, vegetation changes, population increase and decreases, and resulting changes to suitable habitat.

Historical ORV use has reduced available habitat and the CPSD tiger beetle population size. This has previously resulted in a population that faces threats from minor stochastic events and minor environmental perturbations. However, we find that recent protections agreed to and implemented by the 2013 CCA Amendment now provide an adequate amount of habitat protected from ORV use to allow the conservation of the central and northern populations of CPSD tiger beetle and the dispersal and colonization habitat between the two populations.

Summary of Factor A

The proposed rule identified ORV use as a threat to the CPSD tiger beetle through direct mortality and injury, and by reducing prey base and soil moisture. We still conclude that ORV use can substantially reduce habitat qualities essential to the CPSD tiger beetle's life cycle (e.g., soil moisture and prey availability) (Knisley and Hill 2001, p. 389; Knisley and Gowan 2008, pp. 10–11). Reduction in habitat quality can reduce reproductive success and the tiger beetle population growth rate (e.g., Klok and de Roos 1998, pp. 205–206). In the proposed rule, we acknowledged the very important protections of Conservation Areas A and B from ORV use. However, despite these conservation efforts, we determined at that time that only 48 percent of occupied swale habitat in the central population was protected, and none of the dispersal corridor habitat was protected (Figure 3, Knisley and Gowan 2009, p. 8). In addition, we concluded that the degradation of habitat (both occupied and potential) by ORV use reduced the ability of the population to expand or disperse in areas outside of the Conservation Areas and thereby reduced the population's carrying capacity.

Since the publication of the proposed rule, the CPSD tiger beetle conservation committee signed the 2013 CCA Amendment that now provides an adequate amount of protected habitat for both the central and northern populations of CPSD tiger beetle and the dispersal and colonization habitat between the two populations. Specific protections include increasing the Conservation Area A boundary to protect 88 percent of CPSD tiger beetle occupied habitat at the central population, and an additional 263 ac (106 ha) of CPSD habitat between the Conservation Areas A and B. We are also working with our



partners to evaluate and potentially protect additional occupied habitat south of Conservation Area A.

We conclude that, by restricting ORV use to areas outside of 88 percent of CPSD tiger beetle occupied habitat at the central population, all of the occupied habitat of the northern population, and 263 ac (106 ha) of the dispersal corridor (see **Ongoing and Future Conservation Efforts**), the species will have a sufficient amount of quality habitat to persist into the future. This protection is being provided through the 2013 CCA Amendment's commitment to eliminate ORV use in Conservation Areas A and B and on islands of habitat within the dispersal corridor. These habitat areas will be protected and be able to sustain sufficient vegetation that supports prey items for larval and adult CPSD tiger beetle, and soil moisture levels that are unaltered by ORV use. Additionally, protected areas will not have ORV use that results in direct killing of CPSD tiger beetles or their prey. Quality habitat and the absence of ORV use will allow for CPSD tiger beetle populations to continue to grow in number and provide resilience to the effects of climate change, drought, and small population size (see *Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence*). Thus, the best scientific and commercial information available indicates that the destruction, modification, or curtailment of the CPSD tiger beetle's habitat or range due to ORV use is not a threat to the species now or in the future.

*Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*

Tiger beetles are one of the most sought-after groups of insects by amateur collectors because of the unique metallic colors and patterns present in the various species and subspecies, as well as their fascinating habits (Pearson *et al.* 2006, pp. 3–5). Interest in the genus *Cicindela* is reflected in the scientific journal entitled “*Cicindela*,” which is published quarterly (since 1969) and is exclusively devoted to the genus. In certain circumstances, collection of these insects can add valuable information regarding biogeography, taxonomy, and life history of the species. However, some collection is purely recreational and adds little to no value to the scientific understanding or conservation of tiger beetles.

Collection of adult CPSD tiger beetles before they mate and lay their eggs may result in reduced population size of subsequent generations. In the proposed rule, we reported that the magnitude of recreational collection cannot be accurately determined for the CPSD tiger beetle, but it is likely that some number of adults were taken in the past. We further reported that as agreed to in the CCA, CPSD State Park and BLM personnel now enforce restrictions on recreational collecting of CPSD tiger beetles, and consequently, collection levels were expected to be low (Conservation Committee 2009, p. 17). However, a peer reviewer and prominent tiger beetle researcher stated that amateur collectors have taken adult tiger beetle from CPSD in recent years, and that there are many tiger beetle collectors out there, possibly 100 or more nationwide, and perhaps the number could be increasing (see Peer Review). But the peer reviewer expected that

most collectors will take small numbers of adults and considers collecting of adult CPSD tiger beetles to have a limited effect on the population (Knisley 2013, pers. comm.).

Although scientific collection is not restricted by any formal permitting process, only one researcher has collected CPSD tiger beetles in approximately the last 14 years. Over this time period, approximately 70 adults were collected (Knisley 2012, pers. comm.). The adults were collected in late May after they had mated and oviposited eggs (Knisley 2012, pers. comm.).

#### Summary of Factor B

CPSD tiger beetles are not overutilized for commercial, recreational, scientific, or educational purposes. A limited number of CPSD tiger beetles are collected from wild populations for recreational purposes; however, CPSD State Park and BLM personnel enforce restrictions on recreational collecting. Collection of CPSD tiger beetles for scientific investigation and some recreational purposes occurs on occasion, but the level of collection is small. The best scientific and commercial information available indicates that overutilization for commercial, recreational, scientific, or educational purposes is not a threat to the CPSD tiger beetle now nor will be in the future.

#### *Factor C. Disease or Predation*

We know of no diseases that are a threat to the CPSD tiger beetle. Natural mortality through predation and parasitism accounts for some individual loss of adult and larval CPSD tiger beetles (Knisley and Hill 1994, p. 16). Known predators of adult tiger beetles include birds, shrews (Soricidae), raccoons (*Procyon lotor*), lizards (Lacertilia), toads (Bufonidae), ants (Formicidae), robber flies (Asilidae), and dragonflies (Anisoptera) (Knisley and Shultz 1997, pp. 57–59).

Known tiger beetle parasites include ant-like wasps of the family Tiphidae, especially the genera *Methoca*, *Karlissa*, and *Pterombrus*, and flies of the genus *Anthrax* (Knisley and Shultz 1997, pp. 53–57). Parasites predominantly target larval tiger beetles (Pearson and Vogler 2001, pp. 170–171). There are two known natural parasites of larval CPSD tiger beetles. Bee flies (Bombyliidae) are known to flick their eggs into beetle burrows (Knisley and Hill 1995, p. 14). When these eggs hatch, the larval parasite feeds on beetle bodily fluids, often resulting in death of the tiger beetle larvae. Wasps of the genus *Methoca* also can parasitize CPSD tiger beetle larvae (Knisley and Hill 1995, p. 14). These wasps deposit their larvae in the burrows of larval tiger beetles. The wasp larvae then consume the tiger beetle larvae. Despite documented parasitism to larval CPSD tiger beetle, effects to the species are low and not considered a threat to the CPSD tiger beetle (Conservation Committee 1997, p. 7).

Summary of Factor C

We have found no information that indicates that disease negatively affects the CPSD tiger beetle population. There is some information documenting mortality of CPSD tiger beetles by natural predators and parasites; however, not to a level that significantly affects the species. Thus, disease, parasites, and predation are not a threat to the species now or likely to become so in the future.

*Factor D. The Inadequacy of Existing Regulatory Mechanisms*

The Act requires us to examine the inadequacy of existing regulatory mechanisms with respect to extant threats that place CPSD tiger beetle in danger of becoming either an endangered or threatened species. Regulatory mechanisms affecting the species fall into three general categories: (1) Land management; (2) State mechanisms; and (3) Federal mechanisms.

**Land Management**

The CPSD geologic feature is approximately 1,416 ha (3,500 ac). The southern 809 ha (2,000 ac) of the CPSD is within the CPSD State Park and is categorized as public land with a recreational emphasis (Conservation Committee 2009, p. 17). The State Park's mission, as described in the most recent general management plan (Franklin *et al.* 2005, p. 3), is "to provide visitors [...] recreation experiences while preserving and interpreting the park's natural, scenic, and recreation resources." The northern 1,500 ac (607 ha) is Federal land managed by the BLM's Kanab Field Office (BLM 2000, p. 14).

The northern area is partly within the Moquith Mountain Wilderness Study Area (WSA). Public education for both areas includes signage, brochures, and interpretive programs.

As discussed in the proposed rule and stated previously in this document (see *Factor A; Ongoing and Future Conservation Efforts*), the Utah Department of Natural Resources (which oversees the Utah State Parks), the BLM, the Service, and Kane County developed and signed a CCA in 1997 (Conservation Committee 1997), renewed the agreement in 2009 (Conservation Committee 2009, entire), and further amended the agreement in 2013 (Conservation Committee 2013, entire).

The 2009 CCA recommended conservation objectives and actions designed to protect and conserve the CPSD tiger beetle. Despite the positive and ongoing accomplishments of the 2009 CCA, the proposed rule identified several threats that were still negatively acting on CPSD tiger beetle and its habitat (see **Ongoing and Future Conservation Efforts**). Based on information provided in the proposed rule, discussions with researchers, and onsite evaluations with the CCA partners, signatory agencies established a 2013 amendment to the 2009 CCA. This amendment outlined several new conservation actions that will be enacted to address the threats that were identified in the Service's October 2, 2012, proposed rule (77 FR 60208) (see Table 2). The degree to which the 2009 CCA and the 2013 CCA Amendment have ameliorated identified threats is discussed above and is also discussed below.

Protection for the tiger beetle in Conservation Area A is codified and enforced according to the CPSD State Park's special closure (Conservation Committee 1997, p. 13) and Utah's Administrative Code R 651-633. Of the 809-ha (2,000-ac) CPSD State Park, the conservation actions agreed to in the 2013 CCA Amendment will protect 266 ac (108 ha) of occupied habitat at Conservation Area A, or 88 percent of CPSD tiger occupied swale habitat in the central population. In addition, CPSD tiger beetle adults and larvae were found to the south of Conservation Area A in 2012. The conservation committee visited this area in spring of 2013 to determine any additional habitats that should be protected to support the tiger beetle. The size and configuration of any protected areas will be determined during the remainder of the 2013 field season with input from all members of the conservation committee.

Through regulatory protections established as an outcome of the 1997 CCA, and maintained in the 2013 CCA Amendment, Conservation Area B provides protection to the northern population's entire habitat as we have defined its boundary (see Figure 1). In this area, 370 ac (150 ha) is closed to ORV use to protect a small population of CPSD tiger beetles. Under the original 1997 CCA, approximately 445 ha (1,100 ac) was available for ORV use outside of the Conservation Area B on BLM lands (within the dispersal corridor), but with the stipulation that ORVs stay on open dunes and maintain a 3-m (10-ft) buffer around vegetation. BLM and Utah State Parks have the authority to issue a ticket to ORV users who do not comply with closed areas that are identified with carsonite posts (essentially all of Conservation Areas A and B, and all protected habitat polygons between these two areas) (Conservation Committee 1997, p. 13).

At the time of the proposed rule, we had no record of enforcement effort or success of the closures at either Conservation Area A or B, or the degree of compliance with the 3-m no-ride buffer around vegetation on BLM land. Since that time we have visited the CPSD dune feature and discussed the issue of compliance with BLM and Utah State Parks staff. Our visits to the area have observed almost no ORV tracks within Conservation Areas A or B but a moderate amount of tracks in the vicinity of some of the vegetated areas on BLM lands that are not in Conservation Area B. BLM and State Park enforcement officers indicate that violation of areas that are currently protected is not a problem and that the large majority of ORV users voluntarily comply with closed areas (Anderson 2013, pers. comm.).

At the time of the proposed rule there was no protection from ORV use for the CPSD tiger beetle in the dispersal corridor between Conservation Areas A and B. As explained above (see *Adult Dispersal*), this area is potentially important for dispersal of tiger beetles or habitat occupancy in the areas between Conservation Area A to Conservation Area B. As part of the 2013 CCA Amendment, Utah Parks and the BLM will protect vegetated habitat islands of connectivity between the southern and northern conservation areas and monitor to ensure compliance. This action was initiated in 2013 and protects 263 ac (106 ha) of additional sand dune habitat comprising 14 individual habitat patches (Figure 4), which range in size from 2.6 to 37.1 ac (1.0 to 15 ha) each.



Overall, the 2013 CCA Amendment increased protected habitat to include 88 percent of the occupied swale habitat of the central population, and an additional 263 ac (106 ha) of habitat between Conservation Areas A and B. In addition, the conservation committee is considering protection of additional occupied swale habitat south of Conservation Area A.

In general, a species' resiliency to demographic and environmental perturbations is related to its ability to disperse within and across habitats, to track the preferred climate space, and to expand rapidly following disturbance as dictated by its reproductive rates and dispersal ability (Williams *et al.* 2008, p. 2). The expanded protection provided by the 2013 CCA Amendment results in improved long-term habitat conditions for the CPSD tiger beetle, resulting in increased species' resiliency, which makes the species less susceptible to other threats such as climate change and drought, demographic and environmental stochasticity, and catastrophic events (see *Factor E. Climate Change and Drought and Small Population Effects*). Previously (see the *Background: Population Distribution*), the central population of CPSD tiger beetle occupied a smaller portion of Conservation Area A, and based on population and habitat sampling results to date, we believed it was not likely that the species would expand to other areas in Conservation Area A due to insufficient habitat conditions. With the additional protections of the 2013 CCA Amendment, Conservation Area A will protect additional occupied habitat that is already being used by the species but is at levels that are artificially low due to the effects of ORVs (see *Population Viability Analysis* and *Factor A*).

In the proposed rule, we recommended that the population at Conservation Area B be managed such that it becomes self-sustaining (see *Population Viability Analysis and Factor A*). Overall, it remains unclear from a biological or regulatory perspective what will be necessary to achieve this. It is possible that, by expanding Conservation Area A, the central population will increase such that it will be sufficient to provide adequate numbers of dispersers to bolster the population at Conservation Area B, thus making it self-sustaining. This should now be achievable since the conservation committee agreed to put additional regulatory measures in place to protect the dispersal corridor between Conservation Areas A and B to allow for a safe and sufficient level of CPSD tiger beetle dispersal between the two areas. In addition, the additional 263 ac (106 ha) of protected habitat in the dispersal corridor will be available to CPSD tiger beetle for colonization.

Although the CCAs are not regulatory mechanisms by themselves, the signatory agencies have implemented the conservation actions specified in the CCA through the use of regulatory mechanisms since 1997, including the legal restriction of ORVs from occupied habitats and dispersal corridor.

#### State Mechanisms

Utah's Administrative Code R 651-633 prohibits motorized vehicle use in designated nonmotorized sand dune areas of CPSD State Park. Conservation Area A is a designated nonmotorized sand dune area, and thus the State Code protects tiger beetle habitat in this area. In addition, State Code will now provide protection to the islands of

habitat within the portion of the dispersal corridor that is on State Park land. CPSD State Park's dual purpose mission statement of providing recreational experiences while preserving natural resources (Franklin *et al.* 2005, p. 3) has assisted with the conservation of CPSD tiger beetle because the State Park has closed areas (Conservation Area A) to ORV use to protect CPSD tiger beetle.

As described above, the 2009 CCA and 2013 CCA Amendment provide long-term protection of the tiger beetle. The 2013 CCA Amendment expands protection based on our current knowledge of the species' distribution. Although the CCAs are not regulatory mechanisms, the State has shown a consistent commitment and ability to implement the protective measures, by using its regulatory authorities to restrict motorized use through its Administrative Code Process. Therefore, we conclude that adequate State regulatory mechanisms are in place to reduce threats to the CPSD tiger beetle.

#### Federal Mechanisms

The FLPMA is the primary Federal law governing most land uses on BLM-administered lands. Section 102(a)(8) of FLPMA specifically recognizes wildlife and fish resources as being among the uses for which these lands are to be managed. Regulations pursuant to FLPMA and the Mineral Leasing Act (30 U.S.C. 181 *et seq.*) that address wildlife habitat protection on BLM-administered land include 43 CFR 3162.3–1 and 43 CFR 3162.5–1; 43 CFR 4120 *et seq.*; and 43 CFR 4180 *et seq.* Cumulatively,

BLM regulations allow the agency to formally recognize sensitive species for special management and protection, include them as such in their land management plans, and to enforce protective closures of posted species habitat. See below for more information.

The BLM manages the CPSD tiger beetle as a “sensitive species,” that is managed under BLM Manual 6840—Special Status Species Management (BLM 2008, entire). The BLM Manual 6840 requires that Resource Management Plans (RMPs) should address sensitive species, and that implementation “should consider all site-specific methods and procedures needed to bring species and their habitats to the condition under which management under the Bureau sensitive species policies would no longer be necessary” (BLM 2008, p. 2A1). The BLM will continue to manage the CPSD tiger beetle as a sensitive species under the BLM Manual 6840 (Bolander 2013, pers. comm.). As a designated sensitive species under BLM Manual 6840, CPSD tiger beetle conservation must be addressed in the development and implementation of RMPs on BLM lands.

The RMPs are the basis for all actions and authorizations involving BLM-administered lands and resources. They establish allowable resource uses, resource condition goals and objectives to be attained, program constraints and general management practices needed to attain the goals and objectives, general implementation sequences, and intervals and standards for monitoring and evaluating the plan to determine its effectiveness and the need for amendment or revision (43 CFR 1601 *et seq.*).

The RMPs provide a framework and programmatic guidance for activity plans, which are site-specific plans written to implement decisions made in an RMP. Activity plan decisions normally require additional planning and NEPA analysis (see below). If an RMP contains specific direction regarding sensitive species habitat, conservation, or management, it represents an enforceable regulatory mechanism to ensure that the species and its habitats are considered during permitting and other decisionmaking regarding BLM lands.

The 2008 Kanab RMP establishes guidance and objectives for the management of the northern portion of CPSD (BLM 2008, entire). In the RMP, the BLM commits to “implement conservation actions identified in the Conservation Agreement and Strategy for the Coral Pink Sand Dunes tiger beetle, including maintaining the established 370-acre conservation area” (BLM 2008, p. 32). In addition to maintaining Conservation Area B, the BLM has funded and continues to fund CPSD tiger beetle monitoring and research activities. BLM was signatory to the 2013 CCA Amendment and agreed to provide the continued protection of Conservation Area B and expanded protection on BLM lands within the dispersal corridor between Conservation Areas A and B (see **Ongoing and Future Conservation Efforts**). Although CCAs are not a regulatory mechanism per se, CCAs can implement conservation measures via regulatory mechanisms, and the BLM has used its regulatory authority to implement the specific protections for the CPSD tiger beetle as outlined in the CCA via its 2008 RMP.

BLM Manual 6840—Special Status Species Management (BLM 2008, entire) also states that “Bureau sensitive species will be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the ESA” (BLM 2008, pp. 26, 32, 41, 64, and 65). As such, BLM manual 6840 establishes management policy and direction for BLM’s continued involvement in the CCA and its membership on the conservation committee (Conservation Committee 2009, p. 7).

With respect to regulatory mechanisms that address climate change, on December 15, 2009, the Environmental Protection Agency (EPA) published in the **Federal Register** (74 FR 66496) a rule titled, “Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act.” In this rule, the EPA Administrator found that the current and projected concentrations of the six long-lived and directly emitted greenhouse gases (GHGs)—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations; and that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare (74 FR 66496). In effect, the EPA has concluded that the GHGs linked to climate change are pollutants, whose emissions can now be subject to the Clean Air Act (42 U.S.C. 7401 *et seq.*) (see 74 FR 66496). However, specific regulations to limit GHG emissions were proposed in 2010 and have not been finalized and, therefore, cannot be considered an existing regulatory mechanism. At present, we have no basis to conclude that

implementation of the Clean Air Act in the future (40 years, based on global climate projections) will substantially reduce the current rate of global climate change through regulation of GHG emissions.

However, the establishment of 263 ac (106 ha) of protected habitat on BLM and Utah State Parks managed lands between Conservation Area A and B will occur in locations of the CPSD dune feature that are at a significantly higher elevation than habitat in the central population. The northern half of the CPSD dune feature is also more densely vegetated and (see *Habitat* in **Background**) should be able to provide better habitat as the effects of climate change are seen in the CPSD area. As a result, establishment of this new habitat will allow CPSD tiger beetle to adjust to the effects of climate change and monitoring of the species' use of this area will inform any adaptive management for the species. .

NEPA may provide additional protection to CPSD tiger beetle and its habitat. As explained previously, Federal land management agencies, such as the BLM, have legislation that specifies how their lands are managed for sensitive species. The NEPA provides authority for the Service to assume a cooperating agency role for Federal projects undergoing evaluation for significant impacts to the human environment. This includes participating in updates to RMPs. As a cooperating agency, we have the opportunity to provide recommendations to the action agency to avoid impacts or enhance conservation for CPSD tiger beetle and its habitat where it occurs on Federal land. For projects where we are not a cooperating agency, we often review proposed

actions and provide recommendations to minimize and mitigate impacts to fish and wildlife resources. However, acceptance of our NEPA recommendations is not required and is at the discretion of the action agency.

#### Summary of Factor D

The BLM and Utah State Parks use their regulatory authorities to implement their commitments in the 2009 CCA, and the 2013 CCA Amendment. State management of land in Conservation Area A provides protection for 88 percent of CPSD tiger beetle occupied habitat in the central population. By the end of 2013, State and Federally managed lands between Conservation Areas A and B will provide an additional 263 ac (106 ha) of protected habitat for CPSD tiger beetle for dispersal and colonization.. Federal land management by the BLM in the northern portion of CPSD geologic feature includes 150 ha (370 ac) of protected habitat and fully protects the northern population. Utah's Administrative Code prohibits motorized vehicle use in designated nonmotorized sand dune areas of CPSD State Park (Conservation Area A and habitat islands within the dispersal corridor), and the BLM's federal sensitive species and RMP authorities protect CPSD tiger beetle habitat in Conservation Area B and habitat islands within the dispersal corridor.

While the Clean Air Act gives the EPA authority to limit GHGs linked to climate change, our analysis concludes that current regulation of these gases is not adequate to reduce the current rate of global climate change. However, establishment of newly



protected habitat between Conservation Areas A and B (as managed by State and Federal regulatory agencies) will allow CPSD tiger beetle to adjust habitat usage to areas that are more resilient to the effects of climate change.

As evidenced by the discussion above, the species is adequately protected by the existing regulatory mechanisms; thus, we conclude that the existing regulatory mechanisms are not inadequate, now or in the future.

*Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence*

Natural and manmade factors affecting the CPSD tiger beetle include: (1) Sand dune movement; (2) climate change and drought; (3) small population effects; and (4) cumulative effects of all threats that may impact the species.

**Sand Dune Movement**

Movement of the swales due to sand dune movement naturally occurs in the CPSD system as wind action continues to shape the dunes. Major dune ridgelines moved approximately 22 m (72 ft) (Knisley and Gowan 2005, p. 4) between 2001 and 2002, and most ridgelines moved 45 m (150 ft) between 2002 and 2010 (Knisley and Gowan 2011, p. 25). Dune movement can result in a change in suitable habitat conditions for the CPSD tiger beetle (Knisley and Gowan 2008, pp. 21–22). For example, dune movement has buried previously occupied swale habitat (Knisley and Gowan 2008, pp. 21–22). It is

likely that dune movement is uncovering potential habitat as well; however, comprehensive surveys to determine this have not been conducted (Knisley 2012, pers. comm.). Wind action created and continues to shape the current CPSD (Ford *et al.* 2010, p. 387), and we have no evidence to suggest that the rate of dune movement is increasing. Because CPSD tiger beetle presumably evolved in this environment, it is likely that the species is adapted to the continual movement of dunes. We have no evidence demonstrating that dune movement is a threat to the species now or is likely to become so in the future; however, additional study of dune movement is recommended.

#### Climate Change and Drought

Our analyses under the Act include consideration of environmental changes resulting from ongoing and projected changes in climate. The terms “climate” and “climate change” are defined by the Intergovernmental Panel on Climate Change (IPCC). “Climate” refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007a, p. 78). The term “climate change” thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007a, p. 78).

Scientific measurements spanning several decades demonstrate that changes in climate are occurring, and that the rate of change has been faster since the 1950s. Based on extensive analyses of global average surface air temperature, the most widely used measure of change, the IPCC concluded that warming of the global climate system over the past several decades is “unequivocal” (IPCC 2007a, p. 2). In other words, the IPCC concluded that there is no question that the world’s climate system is warming.

Examples of other changes include substantial increases in precipitation in some regions of the world and decreases in other regions (for these and additional examples, see IPCC 2007a, p. 30; Solomon *et al.* 2007, pp. 35–54, 82–85). Various environmental changes (e.g., shifts in the ranges of plant and animal species, increasing ground instability in permafrost regions, conditions more favorable to the spread of invasive species and of some diseases, changes in amount and timing of water availability) are occurring in association with changes in climate (see IPCC 2007a, pp. 2–4, 30–33; and Global Climate Change Impacts in the United States 2009, pp. 27, 79–88).

Results of scientific analyses presented by the IPCC show that most of the observed increase in global average temperature since the mid-20th century cannot be explained by natural variability in climate and is “very likely” (defined by the IPCC as 90 percent or higher probability) due to the observed increase in GHG concentrations in the atmosphere as a result of human activities, particularly carbon dioxide emissions from fossil fuel use (IPCC 2007a, pp. 5–6 and figures SPM.3 and SPM.4; Solomon *et al.* 2007, pp. 21–35). Further confirmation of the role of GHGs comes from analyses by Huber

and Knutti (2011, p. 4), who concluded it is extremely likely that approximately 75 percent of global warming since 1950 has been caused by human activities.

Scientists use a variety of climate models, which include consideration of natural processes and variability, as well as various scenarios of potential levels and timing of GHG emissions, to evaluate the causes of changes already observed and to project future changes in temperature and other climate conditions (e.g., Meehl *et al.* 2007, entire; Ganguly *et al.* 2009, pp. 11555, 15558; Prinn *et al.* 2011, pp. 527, 529). All combinations of models and emissions scenarios yield very similar projections of average global warming until about 2030. Although projections of the magnitude and rate of warming differ after about 2030, the overall trajectory of all the projections is one of increased global warming through the end of this century, even for projections based on scenarios that assume that GHG emissions will stabilize or decline. Thus, there is strong scientific support for projections that warming will continue through the 21st century, and that the magnitude and rate of change will be influenced substantially by the extent of GHG emissions (IPCC 2007a, pp. 44–45; Meehl *et al.* 2007, pp. 760–764; Ganguly *et al.* 2009, pp. 15555–15558; Prinn *et al.* 2011, pp. 527, 529).

In addition to basing their projections on scientific analyses, the IPCC reports projections using a framework for treatment of uncertainties (e.g., they define “very likely” to mean greater than 90 percent probability, and “likely” to mean greater than 66 percent probability; see Solomon *et al.* 2007, pp. 22–23). Some of the IPCC’s key projections of global climate and its related effects include: (1) It is virtually certain

there will be warmer and more frequent hot days and nights over most of the earth's land areas; (2) it is very likely there will be increased frequency of warm spells and heat waves over most land areas; (3) it is very likely that the frequency of heavy precipitation events, or the proportion of total rainfall from heavy falls, will increase over most areas; and (4) it is likely the area affected by droughts will increase, that intense tropical cyclone activity will increase, and that there will be increased incidence of extreme high sea level (IPCC 2007b, p. 8, Table SPM.2). More recently, the IPCC published additional information that provides further insight into observed changes since 1950, as well as projections of extreme climate events at global and broad regional scales for the middle and end of this century (IPCC 2011, entire).

Various changes in climate may have direct or indirect effects on species. These may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as interactions of climate with other variables such as habitat fragmentation (for examples, see Franco *et al.* 2006; IPCC 2007b, pp. 8–14, 18–19; Forister *et al.* 2010; Galbraith *et al.* 2010; Chen *et al.* 2011). In addition to considering individual species, scientists are evaluating possible climate change-related impacts to, and responses of, ecological systems, habitat conditions, and groups of species; these studies include acknowledgement of uncertainty (e.g., Deutsch *et al.* 2008; Berg *et al.* 2009; Euskirchen *et al.* 2009; McKechnie and Wolf 2009; Sinervo *et al.* 2010; Beaumont *et al.* 2011; McKelvey *et al.* 2011; Rogers and Schindler 2011).

Many analyses involve elements that are common to climate change vulnerability assessments. In relation to climate change, vulnerability refers to the degree to which a species (or system) is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the type, magnitude, and rate of climate change and variation to which a species is exposed, its sensitivity, and its adaptive capacity (IPCC 2007a, p. 89; see also Glick *et al.* 2011, pp. 19–22). No single method for conducting such analyses applies to all situations (Glick *et al.* 2011, p. 3). We use our expert judgment and appropriate analytical approaches to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

As is the case with all stressors that we assess, even if we conclude that a species is currently affected or is likely to be affected in a negative way by one or more climate-related impacts, it does not necessarily follow that the species meets the definition of an “endangered species” or a “threatened species” under the Act. If a species is listed as an endangered or threatened species, knowledge regarding its vulnerability to, and known or anticipated impacts from, climate-associated changes in environmental conditions can be used to help devise appropriate strategies for its recovery.

The IPCC predicts that the resiliency of many ecosystems is likely to be exceeded this century by an unprecedented combination of climate change, associated disturbances (e.g., flooding, drought, wildfire, and insects), and other global drivers (IPCC 2007, pp. 31–33). With medium confidence, IPCC predicts that approximately 20 to 30 percent of

plant and animal species assessed by the IPCC so far are likely to be at an increased risk of extinction if increases in global average temperature exceed 1.5 to 2.5 °C (3 to 5 °F) (IPCC 2007a, p. 48).

Regional projections indicate the Southwest, including southern Utah, may experience the greatest temperature increase of any area in the lower 48 States (IPCC 2007a, p. 30). Drought probability is predicted to increase in the Southwest (Karl *et al.* 2009, pp. 129–134), with summers warming more than winters, and annual temperature increasing approximately 2.2 °C (4 °F) by 2050 (Ray *et al.* 2008, p. 29). Additionally, the number of days over 32 °C (90 °F) could double by the end of the century (Karl *et al.* 2009, p. 34). Projections also show declines in snowpack across the West, with the most dramatic declines at lower elevations (below 2,500 m (8,200 ft)) (Ray *et al.* 2008, p. 29). A 10 to 30 percent decrease in precipitation in mid-latitude western North America is projected by the year 2050, based on an ensemble of 12 climate models (Milly *et al.* 2005, p. 1). Overall, future projections for the Southwest include increased temperatures; more intense and longer-lasting heat waves; and increased probability of drought exacerbated by higher temperatures, heavier downpours, increased flooding, and increased erosion (Karl *et al.* 2009, pp. 129–134).

Utah is projected to warm more than the average for the entire globe (Governor's Blue Ribbon Advisory Council on Climate Change (GBRAC) 2008, p. 14). The expected consequences of this warming are fewer frost days, longer growing seasons, and more heat waves (GBRAC 2008, p. 14). For Utah, the projected increase in annual mean

temperature by year 2100 is about 4.5 °C (8 °F) (GBRAC 2008, p. 14). Because of increased temperature, Utah soils are expected to dry more rapidly (GBRAC 2008, p. 20); this is likely to result in reduced soil moisture levels in CPSD tiger beetle habitat.

Utah is projected to have more frequent heavy precipitation events, separated by longer dry spells as a result of climate change (GBRAC 2008, p. 15). Drought is a localized dry spell. Drought conditions are a potential stressor to the CPSD tiger beetle, as rainfall indirectly controls population size and the changing dynamics of the species (Knisley and Gowan 2009, p. 8).

Previous drought-like conditions have resulted in drastic CPSD tiger beetle population declines. For example, low rainfall amounts from 2001 to 2003 resulted in reduced adult numbers in 2004 and 2005 (Knisley and Gowan 2008, p. 8). Conversely, high adult numbers in 1996 and 2002 followed several years of higher than average rainfall (Knisley and Gowan 2008, p. 8). These observed population responses to rainfall are most likely caused by reductions and increases in prey and soil moisture. Prey is more abundant during wet years, and this abundance reduces the effects of starvation, decreases development time, and increases fecundity (Knisley and Hill 2001, p. 391). Soil moisture seems to have the greatest effect on oviposition and larval survival. As stated in Factor A, reduced water availability is limiting to tiger beetles in CPSD, and this is evidenced by the fact that in one experiment water supplementation increased larval CPSD tiger beetle survival by 10 percent (Knisley and Gowan 2006, p. 7).



To help the species adapt and be resilient to changing climates, the 2013 CCA Amendment protects an additional 263 ac (106 ha) (see **Ongoing and Future Conservation Efforts**) of CPSD tiger beetle habitat in the northern area of the CPSD feature at a high elevation and where swale habitat exists with dense vegetation. This northern area of the CPSD area will be more resistant to the warming and drying effects of climate change as temperatures in this area will be somewhat cooler than where the majority of CPSD tiger beetle are currently found at the central population. In addition, many swale habitats in this area are over-vegetated and drying related to climate change would be expected to reduce vegetation amounts as the effects of climate change take place in the future. This scenario is expected to result in habitat that is more moderately vegetated and thus more appropriate CPSD tiger beetle habitat. Also, expanded habitat in the vicinity of the central population as a result of the 2013 CCA Amendment will result in a larger population, which will make the species more resilient to climate change.

In summary, the limited geographic range of CPSD tiger beetle to sand dunes and swales within the CPSD geologic feature somewhat limits the ability of the species to adapt by shifting its range in response to changing climatic conditions. CPSD tiger beetle survival and reproduction, as described above, are highly dependent upon soil moisture, which in turn is dependent upon climatic conditions (precipitation and temperature). Climate change is predicted to increase temperatures and increase the likelihood and duration of drought conditions in Utah. Both of these effects will reduce soil moisture in CPSD and could impact the CPSD tiger beetle. However, newly protected CPSD tiger beetle habitat will be located in the higher elevation northern portion of the park. Swale

habitats in this area will provide protected dispersal habitat between Conservation Areas A and B and will also provide habitat for colonization and population expansion. Some of this habitat is currently over-vegetated and not currently suitable habitat for the CPSD tiger beetle, but will become less vegetated and thus more suitable for the species as temperatures warm and dry the area. For these reasons, we conclude that environmental changes resulting from climate change, including drought, will be moderated as a result of conservation measures in the 2013 CCA Amendment and we do not consider climate change to be a threat to the species, now or in the future.

#### Small Population Effects

Here we consider that the CPSD tiger beetle has one of the smallest geographical ranges of any known insect (Romey and Knisley 2002, p. 170). It is restricted to the CPSD geologic feature and occupies only 202 ha (500 ac) (Morgan *et al.* 2000, p. 1109).

A species may be considered rare because of a limited geographical range, specialized habitat, or small population size (Primack 1998, p. 176). In the absence of information identifying threats to a species and linking those threats to the rarity of a species, we do not consider rarity alone to be a threat. A species that has always been rare, yet continues to survive, could be well equipped to continue to exist into the future. Many naturally rare species have persisted for long periods within small geographic areas, and many naturally rare species exhibit traits that allow them to persist despite

their small population sizes. Consequently, the fact that a species is rare does not necessarily indicate that it may be in danger of extinction.

CPSD tiger beetle has a very limited occupied range and a very small population size (558 adults in 2005 to a high of 2,944 adults in 2002). It has several characteristics typical of species vulnerable to extinction including: (1) A very narrow geographic range; (2) only one known self-sustaining population; and (3) a small population size.

Extinction may be caused by demographic stochasticity due to chance realizations of individual probabilities of death and reproduction, particularly in small populations (Shaffer 1981, p. 131; Lande 1993, pp. 911–912). Environmental stochasticity can result in extinction through a series of small or moderate perturbations that affect birth and death rates within a population (Shaffer 1981, p. 131; Lande 1993, p. 912). Lastly, extinction can be caused by random catastrophes (Shaffer 1981, p. 131; Lande 1993, p. 912). The proposed rule stated that the CPSD tiger beetle was vulnerable to extinction due to: (1) Demographic stochasticity due to its small population size; (2) environmental stochasticity due to continued small perturbations caused by ongoing modification and curtailment of its habitat and range from ORV use; and (3) the chance of random catastrophe such as an extended drought. However, the enactment of the 2013 CCA Amendment has provided conservation actions that address these potential threats. The CPSD tiger beetle population has been increasing in population size for the last 8 years and is of sufficient size to provide dispersers into newly protected habitat; newly protected habitat will remove the threat of ORV use; and the effects of drought and

climate change will be offset by protected habitat that occurs at higher elevations that are cooler and have an over-abundance of vegetation.

Small populations also can be vulnerable due to a lack of genetic diversity (Shaffer 1981, p. 132). We have no information regarding genetic diversity of CPSD tiger beetle. A minimum viable population (MVP) will vary depending on the species. An MVP of 1,000 may be adequate for species of normal genetic variability, and an MVP of 10,000 should permit long-term persistence and continued genetic diversity (Thomas 1990, p. 325). These estimates should be increased by at least 1 order of magnitude (to 10,000 and 100,000) for insects, because they usually have greater population variability (Thomas 1990, p. 326). Based upon available information, CPSD tiger beetle likely does not meet these minimum population criteria for maintaining genetic diversity because the estimated population size ranges from 558 to 2,944 individuals. However, the conservation measures that expand Conservation Area A, and create 263 ac of protected habitat between Conservation Areas A and B, are expected to bolster CPSD tiger beetle population numbers, increase the species' resiliency, and thus offset the species' potential vulnerability to a lack of genetic diversity.

In summary, we do not find that small population size on its own is a threat to CPSD tiger beetle. Despite, the species' relatively small population size, the 2009 CCA and the 2013 CCA Amendment conservation actions will reduce the species vulnerability to extinction due to demographic stochasticity, environmental stochasticity, and random catastrophe by removing the threat of ORV use, and by providing additional protected

habitat to allow the species to adjust to drought and climate change. In addition, the estimated adult CPSD tiger beetle population has been increasing in size over the last 8 years, and it was estimated at 2,494 in 2013. This is close to its largest estimated size (2,944), which occurred in 2002 (see **Background**). Thus, we do not consider small population size a threat to the species, now or in the future.

#### Cumulative Effects

Some of the threats discussed in this finding could work in concert with one another to cumulatively create situations that potentially impact the CPSD tiger beetle beyond the scope of the threats that we have already analyzed. However, we believe that the suite of conservation measures in the 1997/2009 CCA and the 2013 CCA Amendment address and alleviate all of the threats to the CPSD tiger beetle adequately for the species to persist into the future. Additional habitat protection areas have removed the threat of ORV use and will allow the CPSD tiger beetle population to increase in numbers in habitat where they are currently present but in low numbers. Population increases will make the species more resilient to the effects of climate change and small populations. In addition, increased protected habitat will allow the species to better disperse between the two existing populations, and newly protected habitat that exists between the two conservation areas is now available for colonization.

#### Summary of Factor E

Wind action created and continues to shape the CPSD geologic feature (Ford *et al.* 2010, p. 387). Sand dune movement naturally occurs in this system as wind action continues to shape the dunes. Dune movement can result in a change in suitable habitat conditions (Knisley and Gowan 2008, pp. 21–22); however, it is likely that dune movement is uncovering potential habitat as well as covering previously occupied habitat (e.g., Gregory 1950, p. 188). CPSD tiger beetle evolved in a dynamic dune-dominated system, and we have no evidence to suggest that the rate of dune movement is increasing or decreasing. Thus, we have no information indicating that dune movement is a threat to this species, now or is likely to become so in the future.

Utah is projected to have increased temperatures and more frequent heavy precipitation events, separated by longer dry spells, as a result of climate change (GBRAC 2008, p. 15). Utah soils are expected to dry more rapidly as a result of increased temperatures (GBRAC 2008, p. 20). Drought duration and intensity in CPSD will likely increase in the future, magnifying the soil moisture reductions expected from temperature increases alone. Precipitation and soil moisture levels currently limit the CPSD tiger beetle population in the CPSD (Knisley and Gowan 2006, p. 7), and reductions in soil moisture associated with climate change and drought could further reduce the CPSD tiger beetle population size. However, a suite of conservation measures in the 2009 CCA and the 2013 CCA Amendment address the threats of climate change and drought by providing protected dispersal habitat, at different elevations, between Conservation Areas A and B and also providing habitat for population expansion. Some of this habitat is currently over-vegetated, and not currently suitable habitat for the

species. This will change as temperatures warm and dry the area—CPSD tiger beetles prefer areas that are not over-vegetated. In addition, the 2013 CCA Amendment includes a conservation action to perform vegetation treatments, which would more quickly transition these areas to more suitable habitat. Based on the analysis in Factor E, we find environmental changes resulting from climate change and drought will not become threats to the CPSD tiger beetle in the future.

The restricted range of the species does not constitute a threat in itself. However, the species' small population size makes the species more vulnerable to extinction due to demographic stochasticity, environmental stochasticity, and random catastrophe, when combined with the specific threats of ORV use, drought, and climate change. However, the enactment of the 2013 CCA Amendment has provided conservation actions that address these potential threats. Newly protected habitat is of sufficient size to provide dispersal habitat, protection of the habitat will remove the threat of ORV use, and the effects of drought and climate change will be offset by protected habitat that occurs at higher elevations that are cooler and have an over-abundance of vegetation. Furthermore, the CPSD tiger beetle population has been increasing in population size for the last 8 years. Therefore, we do not consider small population size to be a threat to the species, now or in the future.

Threats can work in concert with one another to cumulatively create conditions that will impact CPSD tiger beetle beyond the scope of each individual threat. However,

the Service concludes that addressing the threats identified in the proposed rule independently will prevent these threats from acting cumulatively.

## **Determination**

As required by the Act, we considered the five factors in assessing whether the CPSD tiger beetle meets the definition of a threatened or endangered species. We examined the best scientific and commercial information available regarding the past, present, and future threats faced by the species. Based on our review of the best available scientific and commercial information, we find that the current and future threats are not of sufficient imminence, intensity, or magnitude to indicate that the CPSD tiger beetle is in danger of extinction (endangered), or likely to become endangered within the foreseeable future (threatened), throughout all or a significant portion of its range. Therefore, the CPSD tiger beetle does not meet the definition of a threatened or endangered species, and we are withdrawing the proposed rule to list the CPSD tiger beetle as a threatened species. Our rationale for this finding is outlined below.

The CPSD tiger beetle is not in danger of extinction now because the population has an increasing trend over the past 8 years, and it has persisted in its current distribution and has been thus far resilient to random natural impacts. Conservation measures currently being enacted will expand protected habitat in the central population area and also increase additional protected habitat for dispersal and colonization, which is expected to increase resilience to future random natural impacts. Further, its distribution



encompasses and is representative of the known genetic diversity of the species. As such, the species has not currently declined to the point that it is subject to impacts from stochastic events that would result in a change in the status of the species as a whole. In other words, if the species continues to persist in its current distribution and in the additional areas into which it is expected to colonize and disperse, we conclude that it will have sufficient resiliency, redundancy, and representation to persist now and in the foreseeable future.

In our proposed rule, we identified several threats that we expected to significantly impact the status of the species as a whole into the foreseeable future, which was an appropriate conclusion based on the best available scientific and commercial information available at that time. However, since that time, significant ongoing and new conservation efforts have reduced the magnitude of potential impacts in the future such that the species no longer meets the definition of a threatened or endangered species.

In our proposed rule, we identified direct (killing of CPSD tiger beetles) and indirect effects (habitat loss due to drying, impacts to vegetation, killing of prey items) of ORV use, small population effects, and the effects of climate change and drought as threats to the continued existence of the CPSD tiger beetle. Our conclusion was based on information about past and current impacts to tiger beetle habitat due to these stressors, information about continued and future ORV use within tiger beetle habitat, and the lack of dispersal areas and high-elevation colonization areas protected from these stressors.

Since the time of our proposed listing, the conservation committee has made a significant effort to develop and implement additional conservation measures (2013 CCA Amendment) for the CPSD tiger beetle. The 2009 CCA contains conservation measures that have been implemented by the Utah State Parks, BLM, Kane County, and the Service, and have reduced or eliminated threats to the CPSD tiger beetle (see **Ongoing and Future Conservation Efforts**). In addition, through the 2013 CCA Amendment, the conservation committee has implemented several conservation measures that address the threat of ORV use by increasing protected habitat surrounding Conservation Area A; designating protected habitat areas between Conservation Areas A and B; reassessing conservation area boundaries on a routine cycle (every 3 years) to account for shifting dunes, vegetation changes, population increases and decreases, and resulting changes to suitable habitat; and by continuing Utah State Parks and BLM law enforcement, education, and outreach.

When the 2009 and 2013 CCA measures are considered together, Conservation Area A will protect CPSD tiger beetle occupied swales by restricting ORV use from 88 percent of the species' central population's occupied habitat. In addition, ORVs will be restricted from using a number of habitat islands within the dispersal corridor between Conservation Areas A and B. This protection will increase the resiliency of the CPSD tiger beetle and offset the threat of small population effects by providing additional habitat for the species to increase in number at the central population, and also by providing habitat for colonization and dispersal between Conservation Areas A and B. The additional colonization and dispersal habitat occurs in areas that are higher and more

heavily vegetated than habitat for the central population, and thus will offset the threat of climate change and drought.

Conservation measures that are identified in the 2013 CCA Amendment can be viewed as having regulatory authority because the signatory agencies that have implementation authority have the regulatory controls in place to assure that these measures will be adequately implemented. In addition, independently addressing and eliminating the significance of each of the threats identified in the proposed rule will prevent them from acting cumulatively.

As summarized in the **Ongoing and Future Conservation Efforts** and **PECE Analysis** sections above, we have a high degree of certainty that the 2009 CCA and the 2013 CCA Amendment will continue to be implemented. See Table 1 under **Ongoing and Future Conservation Efforts** for the status of the 2013 CCA Amendment conservation actions. Our level of certainty is high because: Signatory agencies have been compliant with implementation of the conservation actions of the original 1997 CCA and its 2009 reauthorization; the authorities for expending funds are in place and CPSD tiger beetle research and population monitoring has been funded by signatory agencies for the last 20+ years; signatory agencies have been responsive to designating additional protected habitat for the species; monitoring and documentation of compliance with the conservation measures are in place; annual reports of monitoring have been completed; adaptive management will be used to reassess conservation boundaries on a regular basis; and all parties have the legal authorities to carry out their responsibilities

under the 2009 CCA and the 2013 CCA Amendment. In addition, the estimated adult CPSD tiger beetle population has been increasing in size over the last 8 years, and it was estimated at 2,494 in 2013. This is close to its largest estimated size (2,944), which occurred in 2002.

We also have high certainty that the suite of conservation measures in the 2009 CCA and the 2013 CCA Amendment will be effective at reducing and eliminating threats to the CPSD tiger beetle to the point that the species no longer meets the definition of threatened or endangered species. Our certainty arises from the fact that the population has been increasing for the past 8 years, and that the primary effect of both plans is to move current and future ORV impacts outside of occupied and potential swale habitat. Further, the agreements have annual monitoring and reporting requirements to ensure that all of the conservation measures are implemented as planned, and are effective at removing threats to the CPSD tiger beetle and its habitat. Non-compliance ORV issues will be discussed at annual meetings and the adaptive management process will be used to address any identified issues until they are resolved. Potential solutions to ORV non-compliance include increasing enforcement, increasing posting of closed areas, and educational programs. The collaboration between the Service and other stakeholders requires regular meetings and involvement of all parties in order to implement the agreement fully.

In summary, we conclude that the conservation efforts have sufficient certainty of implementation and effectiveness that they can be relied upon in this final listing

determination. Further, we conclude that conservation efforts have reduced or eliminated current and future threats to the CPSD tiger beetle to the point that the species is no longer in danger of extinction now or in the foreseeable future. Therefore, we are withdrawing our proposed rule to list the CPSD tiger beetle as a threatened species.

We will continue to monitor the status of the species through monitoring requirements in the 2009 CCA and 2013 CCA Amendment, and our evaluation of any other information we receive. These monitoring requirements will not only inform us of the amount of CPSD tiger beetle habitat conserved and reclaimed, but will also help inform us of the status of the CPSD tiger beetle population. Additional information will continue to be accepted on all aspects of the species. We encourage interested parties, outside of those parties already signatories to the 2009 CCA and the 2013 CCA Amendment, to become involved in the conservation of the species.

If at any time data indicate that the protective status under the Act should be reinstated, for example, we become aware of declining enforcement of or participation in the CCA or CCA amendment or noncompliance with the conservation measures, or if there are new threats or increasing stressors that rise to the level of a threat, we can initiate listing procedures, including, if appropriate, emergency listing pursuant to section 4(b)(7) of the Act.

## **References Cited**

A complete list of all references cited in this document is available on the Internet at <http://www.regulations.gov> at Docket No. FWS--R6--ES-2012-0035 or upon request from the Field Supervisor, Utah Ecological Services Field Office (see **ADDRESSES** section).

### **Authors**

The primary authors of this document are the staff members of the Utah Ecological Services Field Office (see **ADDRESSES**).

### **Authority**

The authority for this action is the Endangered Species Act of 1979, as amended (16 U.S.C. 1531 *et seq.*).

Dated: September 12, 2013.

/s/ Daniel M. Ashe

Director, U.S. Fish and Wildlife Service

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